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THE iron trade had a stocking more full of orders this Christmas than upon any previous one.

A HAPPY New Year appears to be assured to all of the industries represented by this journal.

AND still another correspondent in Arizona, to whom we applied for information about the Silver Nugget mine, expresses his disbelief, in a very emphatic manner, of the statements made by the company. His information is derived from trustworthy sources, and will be supplemented by a more careful investigation.

THE announcements of dividends on mining shares dealt in wholly or principally in this market, up to the present time this month, amount to nearly $600,000, as against $120,000 for December, 1878. This shows a remarkable growth in the interest in mining in the East, and makes a very favorable comparison with the San Francisco mining stocks, which have been assessed many millions above the dividends paid.

WE regret to announce the death, after a very brief illness, on the night of December 23d, of Mr. S. HERBERT CARRINGTON, a young engineer, of Heathfield, Stockport, England. Mr. CARRINGTON visited this country for the purpose of making a tour of our mining districts, and then returning to England. Although he had been here but a short time, he had made a number of warm friends, to whom the announcement of his sudden death was a severe shock.

NEW PUBLICATIONS.

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA. 1876–8. VOL. *MM. Second Report of Progress in the Laboratory of the Survey at Harrisburg, by* ANDREW S. MCCREATH. *Including:* 1. *Classification of Coals, by* PERSIFOR FRAZER, Jr.; 2. *Fire-brick Tests, by* FRANKLIN PLATT; 3. *Notes on Dolomitic Limestones, by* J. P. LESLEY; 4. *Utilization of Anthracite Slack, by* FRANKLIN PLATT; 5. *and Determination of Carbon in Iron or Steel, by* A. S. MCCREATH. *With* 3 *Indexes, Plate, and* 4 *Page Plates.* Harrisburg, 1879. 8vo, 438 pages.

The larger part of this volume is occupied with Mr. MCCREATH'S second report of progress in the laboratory. This not only testifies to the industry of this excellent chemist and his assistants, but, by reason of its intelligent arrangement and the descriptive matter with which the analyses are accompanied, furnishes a manual of great practical value to miners and consumers of coal and iron ore, as well as to students of their geological and chemical conditions. The full discussion of many important points is necessarily reserved for future volumes, since both the field and the laboratory work of the survey are still in the preliminary stage of accumulating the data without which safe inductions can not be made. Nevertheless, there is much that is suggestive, and not a little that is apparently conclusive, in the results already indicated. As an instance, taken almost at random, we cite the table on p. 127, showing the amount of phosphorus in various coals and the cokes made from them, which shows that some of these fuels contain so much of this element as to be unfit for the manufacture of Bessemer irons, even with ores and fluxes entirely free from it.

Prof. PERSIFOR FRAZER'S paper on the Classification of Coals, which has already, by permission of the Director of the Survey, been read before the Institute of Mining Engineers, is here reproduced, with a supplementary note by Prof. LESLEY, which furnishes a striking proof of the value of what might have seemed to some readers a merely ingenious and perhaps hypercritical essay. For it now appears that, upon the application of the principle of classification adopted by Prof. FRAZER (and credited by him to Prof. JOHNSON), the coals of Pennsylvania, from West to East, arrange themselves in a regular series, showing a gradual increase in the ratio of solid carbon to volatile matters, and justifying the conclusion that a greater number of analyses would exhibit a continuous gradation, defying the ordinary separations of common usage. Prof. LESLEY says:

"The original subdivision into anthracite, semi-anthracite, semi-bituminous and bituminous, was a mere convenience, founded upon the geographical distribution of hard anthracites on the Lehigh and Lackawanna, soft or semi-anthracites at the western ends of the Pottsville and Shamokin coal-fields, free-burning and flaming semi-bituminous coals east of the escarpment of the Alleghany and along that escarpment, and all other smoking and gas-coals west of that natural limit. The coal trade will always, or for a long time to come, use these convenient names for the different kinds of coals which reach the sea-board; but they have no scientific value."

The analyses of iron ores, fire-clays, and limestones, given in succeeding pages, will be specially useful to iron-masters. A brief paper, by Mr. FRANKLIN PLATT, on Fire-Brick Tests, is a beginning in the right direction, and furnishes facts which, as the author remarks, will "become of value as soon as the subject is again pursued." So far as it goes, it records a comparison of a dozen different kinds of fire-brick, with reference to their "standing-up power" at high temperature; analyses of the bricks being also given. We trust the investigation, interrupted as it has been by the pressure of other work, will be resumed hereafter; but, when that takes place, we hope the method, as well as the extent, of the experiments may be made more comprehensive. Mr. PLATT appears to have had no means of determining temperature or of observing the behavior of the bricks in other respects than that of a change *observed to have taken place* after a heat of a certain period. All that he can report on these points is, that the temperature was always "considerably higher than the melting-point of steel," and that the bricks "were observed several times during the progress of the test, to ascertain any alteration in condition; but, owing to the glare and intense heat of the furnace, little could be seen." Evidently a pyrometer and a few colored glasses should be added to the apparatus next time.

One of the most interesting and valuable of the contributions in this volume is the discussion by Prof. LESLEY of a series of analyses of Cumberland County dolomites, made in the Survey laboratory by Messrs HARTSHORNE and HARTRANFT. Prof. LESLEY first calls attention to the well-known facts that the older limestone formations are highly magnesian, and that beds of comparatively pure limestone intervene, in these formations, between highly magnesian beds. Iron-masters are accustomed to choose certain layers in their quarries to furnish fluxes for blast-furnaces, and many analyses have been made for their guidance; but these separate and local investigations have led to the discovery of no general averages of constituents in whole formations, no law of regular or irregular alternation between magnesian and non-magnesian layers. "It has not been possible to say whether the several magnesian layers resemble each other; whether the several purer limestone layers are alike or not; or to what degree the two series represent two kinds of physical action intermittent in the ancient seas."

To gain light on these questions, Prof. LESLEY selected an exposure of Siluro-Cambrian magnesian limestone (No. II.) made by the Walton quarry and rock-cut of the Northern Central RR., on the west bank of the Susquehanna, opposite Harrisburg, where 115 layers of stone, with an aggregate thickness of 371 feet, appear in a regular, conformable series, having a southward dip of about 30°. These layers were carefully measured and mapped, and separately sampled and analyzed. They were distinguished in the first instance by the eye, and their difference in appearance is shown by analysis to indicate a striking difference in constitution. We refer the reader to the volume itself for the full discussion; but we can not forbear to quote Prof. LESLEY'S conclusions. He says:

"1. Taking 115 beds, with a total thickness of 371 feet, from the lower middle part of the great magnesian limestone formation, No. II.—the 'Calciferous Sandstone' of New York, and probably of Siluro-Cambrian age—and submitting them individually to chemical analysis, they are seen to belong to two well-marked lithological species; *one*, a limestone, carrying 2 or 3 per cent of magnesia carbonate and 1 or 2 per cent of insoluble materials; *the other*, a dolomitic limestone, charged with from 25 to 35 per cent of magnesia carbonate and an average of over 7 per cent of insoluble matter, rising in some cases to 10 and 15 per cent, or even more.

"2. These two species alternate, not in the same bed, but in separate beds sharply distinguished from each other, and traceable across the exposure, a distance of from 80 to 100 feet.

"3. The planes of separation are, in most cases, those of ordinary deposition.
"4. No current, or cross, or false bedding is visible.
"5. Some of the beds of both species are only a few inches thick; others are six or eight feet thick; and there seems to be no rule connecting either species with the thin or with the thick beds.
"6. Sometimes a bed of limestone only five or six inches thick crosses the exposure between two equally thin beds of dolomite; yet there is no appearance of gradation in the deposits, nor in their chemical composition. The same percentages of carbonate of magnesia are found at both extremities of the exposure.
"7. In a few cases, there is a decided difference in the amount of magnesia at one or the other end of the exposure; but whether this be due to some error in the investigation, or to a radical change of composition along the bed which exhibits it, is not certain.
"8. There are thick masses of limestone strata with comparatively thin magnesian layers in their midst; and, *vice versa*, there is sometimes a considerable thickness of magnesian rock, parted by thin layers of nearly pure limestone.
"9. There are a few layers of an intermediate species; but these are not numerous enough to destroy the remarkable and sudden contrast of alternate layers of limestone, with 2 or 3 per cent of magnesia, and layers with 25, 30, 35, or more per cent. In fact, the extreme limits are often directly and repeatedly in contact with each other.
"10. The largest percentage of silicate of alumina is almost invariably found in the high magnesian layers.
"The only generalization I can make from the above data is a negative one, namely, that no theory of percolation can account for the facts; that no theory of more rapid dissolution of carbonate of lime, leaving a growing charge of carbonate of magnesia behind, will apply to rocks which are neither honeycombed nor visibly porous, nor unusually cleft, nor otherwise disturbed; and that any theory to account for the presence of the magnesia must treat the layers of both species as equally mechanical sediments; especially seeing that the larger part of the insoluble matter resides in those which contain most magnesia, while magnesia is present in all of both kinds."

We are not sure that "any theory to account for the presence of the magnesia must treat the layers of both species as equally mechanical sediments." If we appreciate fully the force of Prof. LESLEY'S facts, and if we understand the reasoning of Dr. HUNT on the same subject (*Chemical and Geological Essays*, viii. and xiii.), there is more reason for regarding these alternate layers as equally *non*-mechanical sediments, and attributing the variations in the proportions of magnesia to secular changes in the menstruum from which they were precipitated. If Prof. LESLEY intends to dissent from the view of Dr. HUNT, he will render a service to students of chemical geology by presenting this part of his argument in greater detail.

Mr. PLATT'S paper on the Utilization of Anthracite Slack Coal describes a series of experiments undertaken in connection with Messrs. JOHN FULTON, T. T. MORRELL, and DANIEL N. JONES, of the Cambria Iron-Works, to test the method, said to be so successful in Wales, of preparing a fuel by coking a mixture of anthracite slack or crushed coal, bituminous slack or crushed coal, and pitch. The percentages of these ingreients used in Wales are 60, 35, and 5, respectively. Mr. PLATT'S experiments, in which soft anthracite from Shamokin (containing 6·18 per cent of volatile matter, against 6·5 to 8·5 in the Welsh anthracites) and bituminous coal from Latrobe, Westmoreland County, were used, showed that 50 per cent each of anthracite and bituminous coal would give a coke capable of bearing the burden of a 75-foot furnace-stack; that a larger proportion of anthracite yielded a coke too weak for blast-furnaces; that the pitch was not necessary; that, as compared (in the cupola) with Connellsville coke, the anthracite coke has a lower melting capacity, requires more time to do the same work, and crumbles badly in handling. Mr. PLATT concludes that "if the material as made at the Johnstown ovens be a fair sample of what might be expected as the average product, the conglomerate fuel could not compete at present with either coke or anthracite coal."

Mr. MCCREATH'S paper on the Determination of Carbon in Iron or Steel (more fully described in his paper before the Institute of Mining Engineers, *Transactions*, Vol. V., p. 575) concludes the report. The full table of contents and several indexes at the end of the book perfect its usefulness and convenience for reference.

THE BRITISH EXPORTS OF IRON.

The following table is taken from government returns, and prepared by Messrs. W. W. & C. RICHARDSON, of London:

EXPORTS OF RAILWAY IRON, ETC.

RAILWAY IRON EXPORTED TO	Month ending Nov. 30.			11 Months ending November 30th.		
	1877. Tons.	1878. Tons.	1879. Tons.	1877. Tons.	1878. Tons.	1879. Tons.
United States	2	14	9,357	1,051	717	37,932
Russia	8,105	2,306	86	79,986	57,067	37,925
Turkey	.....	139	.....	299	500	1,030
British India	8,887	10,359	5,376	89,547	100,057	75,733
British North America	1,378	1,632	2,198	36,001	33,861	64,418
Egypt	.....	477	.....	1,003	2,857	1,481
Australia	8,908	8,490	2,592	78,556	68,904	53,039
Brazil	1,321	557	1,873	23,328	15,005	31,249
Holland	2	10	1,090	947	116	6,904
Spain and Canaries	832	532	16	20,315	24,256	13,085
Sweden and Norway	3,076	318	2,527	56,897	23,647	14,281
Chili	7	.....	76	922	1,334	798
Denmark	13	1	324	3,632	5,062	5,042
Peru	5	124	.....	1,285	3,535	2,701
France	104	24	.....	151	120	105
Germany	1,439	1,730	141	20,901	36,980	3,487
Belgium	20	8	.....	115	224	25
Italy	21	132	2,673	8,849	18,527	34,756
Other countries	2,776	3,433	6,658	32,272	29,114	43,167
Total	36,896	30,286	34,987	456,057	421,883	427,158

	Month ending Nov. 30.			11 Months ending November 30th.		
	1877. Tons.	1878. Tons.	1879. Tons.	1878. Tons.	1878. Tons.	1879. Tons.
Total exports from Great Britain of iron and steel to all countries	184,748	193,791	306,056	2,171,070	2,150,075	2,629,549
Estimated total of iron rails.	10,791	3,830	5,294	165,214	108,128	48,472
" " steel rails.	18,810	18,785	23,780	217,426	238,027	307,769
Total of rails	29,201	22,615	29,074	382,640	346,155	356,241
Exports of the following to the United States:						
Pig-iron	3,507	5,772	67,474	34,529	29,054	231,608
Old iron for re-manufacture.	207	128	48,901	2,780	1,613	131,861
Steel, unwrought	620	431	1,641	5,784	4,437	6,622
Tin plates	9,576	12,453	17,279	97,918	100,235	141,533
Hoops and sheets	214	203	2,843	5,021	957	6,778
Bar, angle, bolt, and rod	541	226	8,754	5,200	4,539	14,286

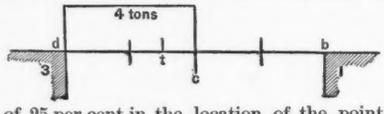
The above table shows that the exports of railway iron are not so great as in 1877, and but a little better than in 1878; and that, without the increased demand from the United States, it would have been much less. The exports of all kinds of iron and steel show an increase of over 50 per cent for November, as compared with the same month in 1877 and 1878, and of about 25 per cent for the eleven months ended with November this year, as compared with the same periods in 1877 and 1878. The shipments to the United States amount to over half a million tons, and promise to be still larger in 1880.

"PROBABLE ERRORS IN HUMBER'S BOOK ON STRAINS."

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In the JOURNAL of November 15th (to which the reader is referred), "X" asks for more and clearer information in regard to the above subject than was given by me in the JOURNAL of November 1st; also to be shown why his beliefs and suppositions in regard to shear and point of maximum moment are wrong; the explanations, if possible, to be given without using calculus or algebra.

In the example below, worked by "X," he finds the moment at $c = 2$ foot-tons, that at t, $\frac{1}{8}$ the span from c, 2·25 foot-tons, and then asks if



this difference of 25 per cent in the location of the point of maximum moment can be considered as *very near* the truth. He then says: "I believe that the distance $c\,t$ from the *end of the load* to the place of *maximum moment* can be readily found thus:

"As twice span : length of load :: length of load : $c\,t$."

From this proportion—

$$c\,t = \left(\frac{\text{length of load}^2}{2 \times \text{span}}\right);$$

also

$$d\,t = d\,c - c\,t = \text{length of load} - \left(\frac{\text{length of load}^2}{2 \times \text{span}}\right).$$

Comparing this with my expression for the point of maximum moment, namely:

$$x = z - \frac{z^2}{2l},$$

in which l = span, z = length of load $= d\,c$, and x = distance from point to loaded abutment $= d\,t$, we have

$$d\,t = \text{length of load} - \left\{\frac{\text{length of load}^2}{2 \times \text{span}}\right\},$$

or the same as above.

My statement, that Humber's statement is very nearly correct, was made in connection with the above formula, which gives the true point, and in which substitutions were made for the case when the load extends over one quarter the span, and for the case when it extends over one half the span; hence, it showed for itself how much latitude was implied by *very nearly*.

To prove the correctness of the value of $d\,t$, let us take "X's" example, $d\,c$ being any distance, as 3 feet instead of half the span. We find, by his methods,

$$\text{Loaded abut. reaction} = \text{wt. per ft.} \times \text{length of load} \times \frac{[\text{span} - \frac{1}{2}(\text{l. of load})]}{\text{span}}$$

$$= \text{wt. per ft.} \times \text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right)$$

$$= 2 \text{ tons} \times 3 \text{ feet} \times \left(1 - \frac{3 \text{ feet}}{2 \times 4 \text{ feet}}\right) = 3{\cdot}75 \text{ tons.}$$

$$\text{Moment at any point } t = \text{abut. reaction} \times d\,t - \text{wt. per foot} \times \frac{d\,t^2}{2}$$

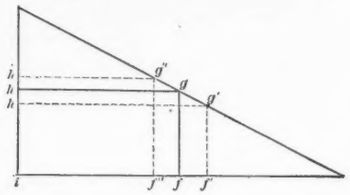
$$= \text{wt. per ft.} \times \text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \text{ span}}\right) \times d\,t - \left(\text{wt. per foot} \times \frac{d\,t^2}{2}\right).$$

Since each term is multiplied by the weight per foot, and by $d\,t$, the distance from the abutment to the point, we can separate out these factors, giving

$$\text{Moment} = \text{wt. per ft.} \times \left[\text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right) - \frac{d\,t}{2}\right] \times d\,t.$$

This product is greatest when the factor in the parenthesis is $\frac{1}{2}\,d\,t$, or when $d\,t = \text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right)$. For, let $f\,g$ = factor in par-

enthesis, and $g\,h = 2\,f\,g = d\,t$, their product = area $f\,g\,h\,i$. If $d\,t$ is increased by 1, the quantity in the parenthesis will be decreased by ½,



since $\frac{d\,t+1}{2}$ is subtractive, so that the new area will be $f'\,g'\,h'\,i$, in which $f\,f' = 1$ and $h\,h' = ½$.

The new area is greater than the old by area $f'\,g'\,f = (f\,g - ½) \times 1$, and less by area $g\,h\,h' = 2\,f\,g \times ½$. The subtractive term being the greater, the area is diminished.

Again, if $d\,t$ is decreased by 1, the quantity in the parenthesis will be increased by ½, so that the new area representing the product will be $f''\,g''\,h''\,i$, in which $f\,f'' = 1$ and $h\,h'' = ½$. This area is greater than the old by area $g''\,h''\,h = (2\,f\,g - 1) \times ½$, and less by area $f''\,f\,g = f\,g \times 1$. The subtractive term being the greater, the area is diminished.

The product is then diminished by either increasing or decreasing $d\,t$; hence, the moment is greatest when, as above,

$$d\,t = \text{l. of load}\left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right), \text{ or}$$

$$d\,t \text{ for max. moment} = \text{l. of load} - \frac{(\text{l. of load})^2}{2 \times \text{span}}, \text{ as assumed.}$$

"X" also believes that the point of maximum moment = point of least shear.

To prove this, we have shear at any point t = loaded abutment reaction — load on $d\,t$

$$= \text{wt. per ft.} \times \text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right) - \text{wt. per ft.} \times d\,t,$$

which is evidently zero when

$$\text{wt. per ft.} \times d\,t = \text{wt. per ft.} \times \text{l. of load} \times \left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right), \text{ or when}$$

$$d\,t = \text{l. of load}\left(1 - \frac{\text{l. of load}}{2 \times \text{span}}\right) = \text{l. of load} - \frac{(\text{l. of load})^2}{2 \times \text{span}},$$

which is the same value as found for the point of maximum moment; hence the two coincide.

"X's" methods for finding shear are perfectly correct, except where he says that "for any section c, it was equal either to the difference between the reaction at d and the load between d and c, or to that between the reaction at b and the load between b and c, depending upon which difference is greatest." These two differences must always be equal.

"Humber's" statement in regard to shear is, then, wrong. But let us look a little farther, and see if nothing can be learned from it. One of "X's" rules for finding shear is to subtract from the portion of the load on the right of the point tending to go to the left abutment, the portion on the left tending to go to the right abutment. In the example used for moments, $d\,c = 3$ feet.

The portion of the load on the right of c tending to go to the left abutment $d = 0$, that on the left tending to go to $b = \frac{2 \times 3^2}{2 \times 4} = 2¼$ tons.

Let the end of the load move to the left, the subtractive term remains zero, while the additive term diminishes, so that the shear *at c* diminishes and finally becomes zero when the end of the load reaches d.

Again, let the end of the load move past c to the right, the portion of the load to the left of c tending to go to b remains the same, while that tending to go to d from the right of c is increased so that the shear *at c* is diminished, and can not again increase (by the end moving to the right) unless the subtractive term becomes the larger, in which case the shear changes sign. The shear at c having the same direction as when the whole beam is loaded, we will call it positive. Hence, *the greatest positive shear at any point occurs when the load extends from the farther abutment to the point.*

Again, suppose the load extends over the shorter segment $c\,b$. The same reasoning as above shows that the shear at c diminishes by the end of the load moving away from c in either direction; that, in moving toward b, it can only reach zero, while in moving toward d, it can only increase by a change of sign. This shear being in the opposite direction to that when the whole beam is loaded, we will call it negative. Hence, *the greatest negative shear at any point occurs when the load extends from the near abutment to the point.*

Hence, we should understand Humber's statement when he says the greatest shear is at the end of the load, not that it is the greatest shear at any point of the beam, but that the greatest shear which can occur *at that point* of the beam is, when the end of the load reaches it; it being the greatest positive shear if the longer segment is loaded, and the greatest negative if the shorter segment is loaded.

C. L. CRANDALL.

"PROBABLE ERRORS IN HUMBER'S BOOK ON STRAINS."

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I am much indebted to your correspondent "T," in yours of Nov. 22d. There can be no doubt that he has correctly interpreted Humber's *meaning*, which, however, differs so much from his *statement* that I presume that "T" must have arrived at his conclusion through a previous knowledge of the facts of the case rather than from reading Humber.

Humber's own words are: "In a beam supported at both ends, subject to a distributed load advancing from either support, the greatest shearing force will be developed at the point of junction of the loaded and unloaded segments." This is not so, by any interpretation, however forced. But "T" makes it evident that Humber's intention was to show that, with such a beam and load, *the greatest shearing force at any given point between the center of the span and the unloaded support will be developed when the load reaches that point*; which is true, but does not apply at all to the other half of the span. Even on the half to which it does apply, the shearing force is *not the greatest one* developed at the time by the advancing load; for that one is at the loaded support.

It appears to me, therefore, that my query in your JOURNAL of October 18th, namely, "Is not Article 45, page 18, of Humber's Book on Strains, entirely incorrect?" must be *unreservedly* answered in the affirmative. The same respecting the error on his page 7.

Both are no doubt slips of Humber's pen; but they are important, and certain to mislead any reader who does not previously know better. I repeat my thanks to "T" for his clear elucidation of the matter. X.

SAN JUAN SILVER MINES.

Special Correspondence of the Engineering and Mining Journal.

From Poughkeepsie Gulch I crossed over the divide into the Eureka and Uncompahgre districts, and examined the principal lodes and prospects. I saw here large veins of barren quartz, and also large veins with enormous and continuous bodies of metal, low-grade on the surface, but many of them high-grade enough to pay now, with reduction works on the ground. As yet, the work done is the merest surface prospecting, but the results I consider extremely promising, the most flattering feature being the size and permanence of the ore-bodies. The Big Giant Company, of Chicago, is doing good and systematic prospect work. It is running two cross-cut tunnels to intersect the lode. The lower level, when I visited it, was in 200 feet, and the upper 75 feet, with a shaft down 50 feet, which, when completed, will connect the two levels.

In the lower level, they had run through two feet of ore, apparently a cross-vein, though I could see no sign of gouge or crevice matter, the ore being frozen to the country rock. They had also cut another 8 inches of rich gray copper, scattered through white quartz, and, from its course, I should judge, a spur from the main vein. The breast of the upper level was also in ore and vein-matter. The rock that they are cutting through is a trachytic porphyry, and I noticed a peculiarity about that which had been thrown over the dump—that which came out first, and had been longest exposed to the sun and air, had turned almost black, colored, I fancy, by oxide of manganese; but break it, and inside, it is the original gray color which it was on coming from the tunnel. The outcrop of the Big Giant vein is hidden by slide-rock just where they will cross-cut it; but a few hundred feet from there, it crops boldly; and on the Yankton, the adjoining extension, the vein is over 40 feet wide and shows in the workings some very fine brittle silver ore; but as very little work has been done, no one can tell how much ore there is—in fact, I don't believe the vein has ever been cut across. However, the Big Giant people are doing systematic exploitation work, and we shall see what we shall see. From Mineral City I returned via the Uncompahgre Cañon to Ouray, having tramped a circuit of about 46 miles.

Here, in the Sneffels District, very little work is being done, principally for the reason that the claims are nearly all yet in the hands of the original owners and discoverers—poor men; and who, not having bank accounts, if they come to a place where the actual *dead-work* does not pay, have to stop.

Mr. Tabor started the ball rolling in Poughkeepsie Gulch by investing in the Alaska Consolidated; and where the big fish go, the small fry all follow. I suppose more property has changed hands at big figures there this past summer than in any other district in San Juan. No big fish has ever swum our way yet; but when he does, he will find splendid properties offering at extremely low figures; and if we succeed in landing him, Sneffels District will have its "boom" too. Capitalists visiting San Juan must go to Lake City or Silverton before they can reach Ouray; and if they meet an occasional communicative stranger there who says, "Oh! they've got nothing over at Ouray," they mustn't be green enough to believe it. If the Denver & South Park Railway builds into the Gunnison country next spring, as it is affirmed it will, Ouray will be only 100 miles from the end of the track, and then, *nous avons changé tout cela*, you bet!

In Sneffels District, the owners of the Wheel of Fortune group, principally gentlemen of Wilkes-Barre, Pa., are working eight men on their property, and having it surveyed for United States patent, under the superintendence of Mr. Ira Y. Munn, of Ouray.

The purchase was completed this autumn only, prior to which the property had been worked in a desultory and not by any means workman-like manner, and yet paid well, and I consider it one of the very best properties in San Juan. The Mount Sneffels Mining and Reduction Company is working 10 men on its prospects all winter, Mr. A. W. Richardson, Superintendent, and has just struck a fine body of high-grade gray copper ore in the Potosi, a northerly extension of the Wheel of Fortune.

The compressor and power-drills and other machinery for the "Mineral Farm" have been shipped, and will be running, it is expected, in January. This property belongs to the Norfolk (Va.) & Ouray Mining and Smelting Company, Mr. M. S. Corbett, General Superintendent, and Mr. Harry Strout, Metallurgist.

I am in deep disgrace here with a few who are engaged in breeding the "untamed feline," owing to a propensity I have for taking a shot at the sneaking brute now and then. But I hope to survive their animosity, which I prefer to their friendship. W. W.

OURAY, COLO., Dec. 5.

SOUTHEASTERN ARIZONA MINING NOTES.

Special Correspondence of the Engineering and Mining Journal.

As I may possibly send you an occasional letter on mining matters, I offer at present a slight sketch of the above portion of our wide territory, as that will, for a time at least, be the locality treated of in my correspondence.

ITS TOPOGRAPHY.

Unlike the State of Nevada, with its north and south mountain ranges

separated by valleys ten to fifteen miles wide, Southeastern Arizona is greatly broken up by cross ranges and island-like hills, rising out of the oceany plains. The San Pedro River, it is true, flowing west of north, has what appears to be an almost continuous range on each side; but on closer examination, long distances are seen to be a mesa, or table country, not claiming any thing like mountain grandeur. The Arivypa Valley, lying farther east, is for a time more regularly walled in; but here, too, the ranges have breaks in them, one just north of Dos Cabezas Peaks, forming what is called Railroad Pass, because it seems to have been opened on purpose to give the iron horse of travel and commerce an unimpeded right of way.

The Chiricahua Valley, running south from Dos Cabezas, has the grand timbered mountains of that name on its easterly side, where for sixty miles the railroad builder between east and west is forced by economical considerations to turn aside. South of Camp Rucker in that range, and not far from the Mexican frontier, a cross valley opens the way eastward into the San Simon Valley; but then to get farther east with ease, a railroad coming through it would have to run northerly to a point nearly opposite Railroad Pass, which affords a direct line between eastern and western passes. The only other opening for railroading purposes is the Gila Valley, 50 miles to the north of Railroad Pass, and it is locked with hills both above and below, so as to be almost impassable.

The Chiricahua Valley is not defined on the west by any long regular range. The Dragoon Mountains intervene; but north and south of these, the eye takes in only round-topped hills, in valley settings, for 30 or 40 miles.

THE CLIMATE

is as nearly perfect as can be found anywhere. So exacting do people become, however, when they are blessed with 325 delightful days in each year, that they grumble bitterly when the fall and spring east winds bring, for two or three days at a time, a cold Atlantic-coast current to vitalize the heated western atmosphere. Between Christmas and the end of January, a few inches of snow fall, and the sky is then dark and threatening indeed; but in about three days, the sun in its usual brightness makes an overcoat a burden again. The highest summer temperature of the San Pedro and Gila valleys is about 105° Fahr. in the shade. On the shore of Lake Michigan, with its moist, stifling atmosphere, 85° is far hotter practically than 105° in the valleys named. Our atmosphere is so dry, and evaporation so rapid, that perspiration is promoted. Sun-stroke is never heard of, and men wearing black felt hats work hard beneath an unclouded sky and take three hearty meals per day. On the higher bottom land, including the Arivypa and Chiricahua valleys, the thermometer rarely registers more than 90°, and the nights are generally cool enough to make a blanket desirable as a covering. In this higher region, chills and fever are unknown, and poor, sickly-looking dyspeptics who arrive from the Atlantic Coast speedily become well and vigorous. For liver or lung complaints, there can not be a better climate; but sufferers must exert themselves on the mountain slopes, and not sit down, under the belief that they are too weak to take severe exercise.

OUR MINING DISTRICTS.

A climate so desirable as we can boast of here naturally makes good mines more valuable than they would be if the country were in the embrace of frost and snow for a third of the year. Fortunately, we do not require to be content with very poor mines in order to enjoy a delightful climate. The celebrated Tombstone mines are only 50 miles southwest of the place I write from. The great Clifton copper mines lie off 100 miles to the northeast. The following other mining localities are all certain to have some extensive and permanent mines within their limits: Dos Cabezas, Chiricahua, California, Swishelm, Dragoon Mountains, Huachua Mountains, Santa Catarina Mountains, Graham Mountains, Arivypa Mountains; these all show strong, well-defined veins carrying bodies of gold, silver, or copper ores, that will, as the country settles up, be extensively and profitably mined. Within the past few days, silver ores assaying $25,000 to the ton have been found in the Dragoon Mountains, and a "rush" of miners from Tombstone has been the result. Fifty miles east of this place, just over the westerly line of New Mexico, very promising mines have been recently discovered, in what was but a year ago an Apache stronghold—the Steins Peak range. From time to time, as I am able to visit the districts and places named, I hope to send you at least hurried notes of what is going on. With the exception of Tombstone and Clifton, the region I speak of is very new, and not a single mine has been developed even to the depth of 100 feet. I believe I am justified in saying that it will have a great mining future, and we who are getting a firm foot-hold now feel that, when the Southern Pacific Railroad comes to our doors, capital will come with it and ask to be let in.

Ewell Springs, Pima Co., Ariz., Dec. 9. J. D. Emersley.

THE CHARACTER OF THE LEADVILLE ORE-DEPOSITS.

By Carl Henrich, M.E.

Since the time that the fame of the Leadville ore-deposits spread all over the country, there has been much difference of opinion about the real character of the same. While one party declared them to be mere pockets, soon to be worked out, another party declared them to be true contact-veins, of a slightly inclined position, but underlying many square miles, and practically as exhaustless as a true fissure-vein, and vastly easier to work. The marvelous growth of the production of the camp, the new strikes constantly reported to the astonished world, gave the latter theory, of course, predominance, and the term *contact-vein* was soon accepted.

This too easily accepted designation of these ore-deposits has misled many clear-headed persons, and has carried them far from the truth in their judgment. The seeming regularity of the Iron mine deposit, the first one opened extensively and systematically, and erroneously taken as a type of the ore-deposits here, has largely contributed to the mistaken idea of true contact-veins, especially in the minds of visitors, who had neither time nor wish for a more extensive and thorough examination of other ore-deposits of Leadville.

Still, even in the case of the Iron mine deposit, all the most elaborate testimony of the most skillful experts in the Iron-Grand View case failed to establish the character of this deposit as that of a true vein (contact-vein); and the opinion of Judge Hallett, in his elaborate charge to the jury, was:

"In respect to this kind of deposit, my impression is, that it is to be known, called, and regarded as an *irregular deposit;* one which, if it should be interrupted for any considerable distance—that is, if what they call the contact or junction between the porphyry and lime should become barren for a considerable distance—should no longer be called a lode."

And, further on in his charge, Judge Hallett says:

"If there was such an intervening space in the contact, as these witnesses call it, barren in its continuity, as might show a separate and distinct body of ore, which had always been such, I should say that it would not pass with the grant of the first."

This ruling certainly leaves no doubt what, in the eyes of the law, will constitute a lode in the Leadville deposits.

Each continuous body of *valuable* mineral will be a separate and distinct lode. The boundary of each lode will be the barren contact surrounding the same; and the top or apex of each lode, that half of the boundary-line from which the lode dips downward.

We have, in these Leadville deposits, flat, lenticular-shaped ore-bodies, most frequently occurring in the zone of the contact between porphyry and limestone, or between porphyry and quartzite, as in the Argentine group of mines; or between different porphyries, as on Fryer Hill; sometimes as pockets and "stöcke" in the limestone, as on Long & Derry Hill. The proper designation for these depesits would be "lagerstöcke." The English name for this kind of deposits, if any exists, I don't know, and leave the invention of an adequate name, if necessary, to somebody more competent.

The contact in itself, barren and closed in a great many places, and probably so along the larger part of its area, and only filled in many other places with *valueless* material, does not in itself constitute a vein or a lode. We have no vein here, in the geological sense of the word, and least of all, a contact-vein. We have some real gash or fissure-veins here in the porphyry and quartzite, but we shall have to decline the name of contact-vein for our contact-deposits here.

However true it may be that we should allow all the characteristics of a fissure-vein also to a true contact-vein, still, on the other hand, it would be sheer folly to try to adapt the characteristics of a true vein to such irregular deposits as these "lagerstöcke."

And it was certainly in this spirit that Judge Hallett drew his distinction between fissure-veins and the Leadville ore-deposits, which distinction has in such a degree provoked the criticism of your correspondent.

Judge Hallett, unlike your correspondent, has never fallen into the error of considering the Leadville ore-deposits as contact-*veins*, but has from the beginning recognized their true cheracter as *irregular deposits*, and has, therefore, never committed the error of confounding a *barren* contact, or *valueless mineral* therein, with a legal lode.

The results of the judicial decisions in the different Leadville cases may be condensed in the following:

1. A lode is in place if the hanging and foot-walls are in place.
2. A lode consists of a continuous body of valuable mineral.
3. A barren contact, or valueless mineral therein, does not constitute a lode.
4. The boundary of the lode is the outcrop of the same and the barren contact, or the contact filled with valueless mineral surrounding the same.
5. The top or apex of each lode is the real outcrop of the same, or that part of the boundary-line of the lode nearest the surface, and from which the lode dips downward.

These rules are so simple and clear that only a prejudiced opinion of contact-veins can find fault with the same. They have given universal satisfaction to all fair-minded parties in the camp, cognizant of the facts and the characteristics of the Leadville ore-deposits.

Leadville, Dec. 4.

LAND LAWS—JUDGE HALLETT'S PAPER TO THE PUBLIC LAND COMMISSION.

The following paper, from the pen of Hon. Moses Hallett, appeared in the Denver *Tribune* of December 4th:

To the Editor of the Tribune:

The subjoined paper was written for the Public Land Commission, and submitted to them early in November. The Commission will report their conclusions to Congress, and probably the attention of that body will be directed to the subject in a way which will lead to action. An expression of public opinion on the subject is, therefore, desirable, and this paper is published with a view to elicit discussion. If the rule which I have advocated shall be adopted, the extent of the location will become a matter of great importance. I have met gentlemen who advocate the granting of forty acres to each claimant, and I observe that Judge Belford in his new bill proposes to give 1500 feet in length by 600 feet in width, which is, I believe, over twenty acres. But I submit that this is too much. If the lands are to be given to prospectors, and they are of any value, a less quantity will sufficiently stimulate the industry of that class. And there should be no fear as to the ability and disposition of capitalists to gather up a sufficient area for deep mining where the existence of valuable ore may be shown.

I am, very truly, etc., Moses Hallett.

To the Honorable the Commissioners to Revise the Land Laws of the United States:

To answer at length the questions relating to lode and placer claims on the mineral lands, submitted by the Commissioners, would require more time than I am able to give the subject at present. I believe that the law governing such claims now in force is wrong in principle and mischievous in its operation, and I beg to offer some suggestions on that general topic. If the present method of granting lodes and veins as such is to be continued, I have no material change to suggest in the law.

In all acts of Congress regulating the manner of locating, holding, and acquiring title to lode claims on the public lands, it is assumed that lodes and veins are separable and distinct from others of like kind, and from the general mass of the mountains in which they are found. The

unity and individuality of the thing to be acquired by the miner and conveyed by the government is taken as a fact admitted, or, at least, clearly ascertainable. The first act on the subject was passed in 1866 (14 Stat. 257). It speaks of "a vein or lode of quartz or other rock in place," as the subject of the grant, and in the third section it is declared that no patent shall issue for more than one vein or lode. This language conveys the idea that a lode when found may be easily traced and distinguished from all others in the same neighborhood; so, in the act of 1872 (17 Stat. 91), it is provided that the location shall be made on a vein or lode, clearly implying that such vein or lode has qualities by which it may be easily defined. This act is embodied in the Revised Statutes without material alteration, and is the law now in force on the subject. In thus recognizing the individuality of veins and lodes, Congress followed the custom of miners in this country, which is based on the same theory; that a lode may be identified beyond question, having length, width, and depth which may be readily ascertained.

In this there is a radical error—not as to the typical vein, which is a single fissure, or rift, in the country rock, filled with mineral matter differing from the inclosing rocks. The walls of such a fissure may furnish unmistakable boundaries which the law may safely recognize as limiting the miner's right. Probably the mines first opened and worked were of that character, and the miners, knowing no other, readily fell into the erroneous belief that all valuable deposits may be easily traced in their course through the earth. But all fissures are not well defined, and all valuable ores are not in fissures. While some lodes have very distinct walls, others have but one wall, and others again none at all. And among well-defined fissures some are known to intersect each other in such way that it is difficult to determine where one begins and another ends.

And these are not the only elements of uncertainty. Associated with the ores of silver and gold, there is usually a gangue or vein-matter which may be any thing different from the country or the mass of the mountain in which the lode is found. The difference may be very slight, as that it is softer, that it is tinctured with some metal not found in the inclosing rock, or that it is of another color, and the like. If it runs with the ore, although it may be elsewhere found without ore, it is regarded by most miners as carrying the character of a lode, so that wherever it may extend, indistinctly, perhaps, and if there be a seam or crevice in the rocks to which it appears to be confined, then, with some interruptions, the lode may also extend. And the courts, instructed by the miners as to what a lode may be, have sanctioned this doctrine with such exceptions only as seemed necessary to avoid interminable confusion. If, now, we consider what differences may arise as to what gangue or vein-matter may be, and its presence in a given locality; whether it extends over a large space and embraces several bodies of ore, or is confined to narrow limits; whether it is continuous for a given distance, or wholly irregular and broken by intruding rocks, from the country, and the like, we may have some idea of the questions contested in the courts under the present law. In this jurisdiction, cases often arise in which witnesses to the number of fifty or more are arrayed against each other in irreconcilable conflict over such questions, and juries, unable to come at the truth in a mass of conflicting evidence, often disagree or yield to the voice of caprice and prejudice. It is safe to say that the greater part of the legal complications for which mines are notorious over all other property, grows out of the practice of dealing with lodes as distinct and separable from the earth in which they may be found. In condemnation of that policy, it is only necessary to say that very many lodes have not that character, and of those that are pretty well defined it is often difficult and sometimes impossible to distinguish one from another. If we can return to the common-law principle, which gives to the owner of the surface all that may be found within his lines extended downward vertically, we shall avoid hereafter fully one half of the controversies that now embarrass the mining interests of the country.

Much more may be said of the difficulties encountered in following lodes under ground; but it is not my purpose to discuss the subject at length in this paper. It is enough to say that lodes are often so indefinite in extent and indistinct in outline that they should not as such be granted by name or other description. The government ought to define with certainty the thing granted, which is not done in describing it as a lode in a certain locality, with the right to follow it to any depth, although it may enter the land adjoining. But if a tract of land should be conveyed with all it contains, the utmost certainty attainable would be given to the grant, and the perplexing questions to which I have referred would be removed.

Proceeding from this general view of the subject, I wish to refer to a class of lodes quite numerous in some districts, which decline but slightly from the plane of the horizon. They are usually found near the surface, and, having but little inclination, they are easily accessible by means of shafts over a large area. If the ground is level, or nearly so, and the lode has a dip of five to twenty-five degrees only, the depth will not greatly increase in the direction of the dip for a considerable distance from the point of discovery. If the surface declines or rises in the direction of the dip, that distance will be correspondingly increased or diminished. If the ground is level or it declines in the direction of the dip, there is little chance for another lode above one that is so nearly flat. If the mountain rises in the direction of the dip, there is no greater probability of finding a lode above the first, until a great elevation has been reached; so that in most cases the grant of a lode so situated by its top and apex according to the provisions of the act of 1872, is in its practical effect a grant of what lies beyond in the direction of the dip as far as the lode extends. This control over contiguous territory is in opposition to some parts, at least, of the acts of 1866 and 1872, in which the surface to be taken in one location was restricted; in the first act, by the local law, and in the second to 1500 feet in length by 600 feet in width. Those acts proceed on the theory that all veins and lodes are in a somewhat vertical position, and probably Congress had no intention to enable the locator to enlarge his territory by pursuing the vein beyond the side-lines. Yet the right so to follow the vein is given, and it is not limited to any class of lodes. It has been claimed by gentlemen of ability and learning that the act of 1872 is not in fact applicable to veins which depart from a perpendicular course more than 45 degrees. The language of the 3d section of that act, "although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward," is thought to be applicable only to veins which have a perpendicular as distinguished from a horizontal course. Moreover, if the departure exceeds 45 degrees, it is to be reckoned from a horizontal line instead of a perpendicular line. This distinction has not, however, been recognized by the courts within my knowledge, and probably it can not be accepted. The word "perpendicular" is correlative to "horizontal," so that every departure from one line is an approach to the other. To stop midway between the lines and say that what has been a "departure from a perpendicular" shall become a "departure from a horizontal," would be arbitrary criticism only. There is nothing in the language to support such a distinction. But the better reason is, that the acts of Congress were clearly intended for fissure-veins, of which many stand above 45 degrees from a perpendicular course. It can not be assumed that Congress intended to prescribe a rule for one class of fissures, leaving others unprovided for. As those acts were apparently intended for all lodes, it is not for the courts to say that they shall be confined to lodes which have a certain position in the earth.

If I have sufficiently explained the operation of the acts with reference to lodes that are nearly flat, I have only to say that the policy of granting the whole of such lodes to the discoverer is everywhere condemned. The Spaniards were of that opinion, and they accordingly graduated the area which could be taken in one location to the inclination of the vein.

SEC. 6. "If to one yard perpendicular the inclination be from three fingers to two palms, the same hundred yards shall be allowed for the square as in the case of the vein being perpendicular."

SEC. 7. "If to the said perpendicular yard there be an inclination of two palms and three fingers, the square shall be of 112½ yards."

Following which, the rule is given in like manner until the inclination becomes four palms in the yard, for which the rule is stated as follows:

"So that if to one particular yard there correspond an inclination of four palms, which are equal to a yard, the miner shall be allowed two hundred yards on the square on the declivity of the vein, and so on with the rest." (*Ordinances of New Spain*, by Charles Thomson; London, 1825, page 73.)

The defect in this rule is, that it requires the development of the vein to determine the area of the location. An American must know the boundaries of his claim at the time of making the location, in order that he may be able to sell it and go in search of another. But the ordinances referred to express the popular idea that a flat vein, or one that is almost flat, shall not be given wholly to the first locator; as a coal-field is not given to him who gets a title to one of the edges of it. I use the word "give" as appropriate in this connection, because the price demanded by the government for mineral lands is nominal only. If they are of any value whatever, the price paid for them is no measure of that value.

A wise policy to distribute the mineral wealth of the country through many hands, and as far as possible reserve it to the laboring class of miners, was sought in the legislation of Congress. In that feature to which I have asked your attention, I think that those acts fail of their purpose. To correct this error and others to which I have referred, and still others which can not be enumerated in this paper, I would grant the lands absolutely by surface lines, with all that they contain, as agricultural lands are granted, but not in such quantities as are given to agricultural claimants. I assume that the policy of limiting the area to be given to one claimant is firmly established, and therefore nothing will be said on that head. There may be different opinions as to what the area of a claim should be, but I think that no one will be found to say that the mineral lands should be sold in unlimited extent to all persons who may apply therefor.

In the law as proposed, it will not be necessary to make any distinction between lode and placer claims. The miner will take all that may be found in his location without being required to consider whether it may be called by one name or another. This, with nearly all other perplexing questions, will be removed from the field of controversy. The features of the law, to which I have referred as worthy of consideration and adoption, may be briefly stated as follows:

First. No location shall exceed ten acres in extent, to be taken in any form so that it shall not be less than 100 feet in width at any point.

Second. A second location shall not be made by the same person within 500 feet of the first.

Third. A location shall be good for all that may be within the lines thereof, and for nothing beyond them.

Fourth. No location shall be made until the discovery of valuable mineral therein. But whenever a lode shall be opened and mineral found therein, whether at the outcrop or on the dip thereof, the location may be made at any point in the direction of the dip, so that the first exterior line of such location shall not be more than 500 feet from such discovery.

Fifth. Except as provided in the act of Congress, all matters relating to the manner of taking and holding claims to be left to the local legislature.

Sixth. The proceedings for patent shall be substantially the same as under the present law.

MONSTER BRIDGE ACROSS THE FRITH OF FORTH.

An occasional correspondent of the New York *Tribune*, writing from Edinburgh under date of November 25th, gives the following description of the great suspension bridge, designed by Sir Thomas Bouch, to span the Frith of Forth:

The successful completion of the Tay Bridge has had the effect of turning public attention in Scotland more seriously than before to the older project of bridging the Frith of Forth. When the former was first discussed, it was generally regarded as the dream of an over-sanguine engineer. To-day it stands as the greatest work of its kind in the world. Its opening for railroad traffic was a shock to the unenterprising timidity which the faithless mistook for wise caution. Even with such a practical evidence before them of the extent of the resources of modern engineering skill, a few are still to be found who receive with a feeling akin to suspicion the idea of a suspension bridge across the Forth. Of the early demonstration of the folly of their lack of faith there can be no manner of reasonable doubt. The matter is in too good hands for the issue to be otherwise, and the interests involved, especially those of the North British Railway Company, are too great for the scheme to be again abandoned.

Last year, Sir Thomas Bouch expected that the Forth Bridge would be completed in a little more than three years from that date. The year 1881, or possibly 1882, will, therefore, in all likelihood, see the giant span of his designing thrown across the ferry.

I have said that the bridging of the Forth is an older project than that of bridging the Tay. The latter seems to have occurred to Sir Thomas in 1849, and was first publicly propounded by him in 1854. Nearly a quarter of a century thus elapsed between the conception of the scheme and its carrying out. The notion of a bridge across the Forth originated in 1818 with Mr. James Anderson, a civil engineer resident in Edinburgh. It is not a little curious that the Scotch engineer should have selected the same spot at which his English successor, Sir Thomas Bouch, now proposes to build the bridge. No little credit is due to Anderson. At a time long before the railway had given the science of engineering the impetus which may be said to have been increasing in volume as the past forty years flew by, he had the boldness to propose a scheme which even thirty-six years later was received with coldness and incredulity. It is no wonder that a public inured to the dangers and delays of stage-coaches and open ferry-boats should look upon the designer of a hanging bridge, with two spans of two thousand feet each, as one who talked in his sleep, when men familiar with the wonders worked by steam, and presumably with such structures as the bridge across the Menai Straits, listened with doubt and apathy to the revival of Anderson's plan, and that, too, with its more formidable features toned down. Sir Thomas Bouch's first plan had reference to a bridge resembling that over the Tay, consisting of a series of piers and spans, with lattice girding. At the spot selected, about six miles west of Queen's Ferry, near the Blackness Castle, it was, however, found that the bed of the river was not of such a nature as to afford the necessary foundation for the supporting columns. The discovery that the bottom of the Frith consisted of mud more than two hundred feet deep unsettled the engineer's scheme, and for a time seemed to threaten its feasibility. Nothing daunted, Sir Thomas reverted to Anderson's plan of a gigantic suspension bridge of two spans; and, notwithstanding popular incredulity and interested obstruction, the foundation-stone of what will be the most wonderful work of its class in the world was laid by Mrs. Bouch, on the little island of Inchgarvie, on September 30th, 1878.

GENERAL APPEARANCE OF THE STRUCTURE.

Unlike the Tay Bridge, which carries only a single line of railway, the Forth Bridge will support a double line. A general idea of its size and construction may possibly be best given by comparison. Let it be supposed that the East River is double its present width, and that the eastern tower of the Brooklyn Bridge, instead of standing upon the Brooklyn shore, stands on an island in mid-stream. Throw another span similar to that now overhanging the East River from the supposed island tower to another tower built on the Brooklyn side; suppose further, that between New York and the suspension tower on that side a wide space of water of thirty feet in depth, at the deepest point, intervenes, and that there is a space of dry land on the Brooklyn side, between the suspension tower and the junction of the roadway of the bridge with that on shore; bridge these spaces with spans resting upon columns, and a very fair idea may be obtained of the proposed Forth Bridge.

The southern end will touch the shore at a point about 100 yards east of South Queen's Ferry, and at the western extremity of Dalmeny Park, the seat of the Earl of Rosebery. South Queen's Ferry is about eight miles from Edinburgh, by the high road. By one approaching the village in that way, and before descending from the height over which the road passes near the hamlet of Dalmeny, a magnificent view is obtained of the Forth and the opposite shore of Fife. On the right, the view is circumscribed by the woods of the Rosebery policy; but to the left, and in front, it opens out into spaciousness and beauty. As I looked down upon it, a few days ago, the Forth was dotted with small sailing craft, and between the wooded shores where it passes out of sight a thin wreath of smoke told of the approach of the steamer from Stirling. A man-of-war was lying at anchor in the roads, its lofty spars swarming with sailors—youngsters, probably, undergoing initiation in the process of reefing—while a steam launch was putting off from its side and heading toward the powder magazine at Blackness Castle. In mid-channel lies Inchgarvie, a rocky little island about 220 yards in length, east and west, fully twenty-two yards in width, and about one acre in area. Directly before it, on the Fife shore, is the village of North Queen's Ferry. A high and apparently perpendicular cliff shows its rugged face to the east of the village, and in front is a little headland dividing the anchorage of St. Margaret's Hope from Inverkeithing Bay. Along the line thus indicated across Inchgarvie to North Queen's Ferry the bridge will be thrown. It will curve slightly eastward for about 400 yards after leaving the southern shore, and will then take Inchgarvie and the north shore in a straight line. The width of the strait from high water to high water is about 1810 yards, or one mile and fifty yards, and the entire length of the bridge will be 2620 yards.

DETAILS OF CONSTRUCTION.

Starting from a stone abutment on the south side, the foreshore will be cleared by three spans. The fourth column will be built in shallow water, and ten spans will carry the bridge over the gradually deepening water, until the southern anchoring towers are reached. Three spans more will carry it to a suspension tower, built in thirty-three feet of water on the edge of the sudden dip which the bed of the Frith makes at that point. Between this tower, the top of which will be 560 feet above high-water mark, and Inchgarvie, there is at high tide a depth of water of 186 feet, and over this the bridge makes its first great leap of 1600 feet in a single span, 150 feet above high water, to another suspension tower, built on the southern slope of the island in water between 70 and 80 feet deep. The latter will attain an altitude above high water of 597 feet. A similar tower, built on the northern side of the island, on a rock called Craigsperry or Sparrow Craig, which is left partially dry at low tide, will be reached in two spans of 165 feet each. From this tower the bridge will make its second leap of 1600 feet, across a channel with 210 feet of water, to the northern suspension tower. The remainder of the bridge will be carried on columns built upon dry land. It will reach the northern anchoring towers in three spans, and nine spans more will carry it to its junction with the roadway on the shore level.

Notwithstanding the magnitude of the work—and it is easy to realize the truth of Sir Thomas Bouch's remark that it will be grand beyond description—it is, in his opinion, a less difficult undertaking than the building of the Tay Bridge. The reason of this is, that there will be no trouble with the foundations. Such difficulties as present themselves can, to a great extent, be calculated upon; and, in any case, they will be visible and above ground, while those arising in connection with the Tay Bridge were under the bed of the river, unseen and unexpected. The bed of the Forth has been thoroughly examined, and it is almost impossible that any contingency can arise in building the supporting columns between the southern shore and the first tower that can not be readily met. The land piers or columns on the southern side will be built on a bottom of gravel. The first three river piers will stand on a foundation of rock. The bottom here dips very gradually, and, farther out, the columns will be founded on a very hard conglomerate or boulder clay underlying several feet of surface mud and clay. The anchoring and southern suspension towers will have a similar foundation. To the north of the latter the bottom makes the rapid dip already referred to, and then rises more gradually, although still at a steep gradient, to the rock comprising Inchgarvie. On a sloping bank off the side of the island, the southern central tower will stand. Here all difficulty about the foundations may be said to end.

THE TOWERS AND GIRDERS.

In order to insure the requisite solidity, four feet of concrete resting upon the gravel bottom will form the foundation of the land piers, which will be built of brick up to the girders. The latter will be eighteen feet high, and constructed upon the single-brace lattice principle, according to which the bars cross each other diagonally. Two of these girders will be placed upon the supporting brick-work so as to run parallel at a distance of 16 feet from each other. They will be bound together by means of cross-girders, and upon the latter a platform twenty-five feet in width will rest, along which the double line of rails will be laid. The bridge will be constructed in this manner as far as the anchoring towers, with this exception, that the foundation of the columns will be changed to suit the altered nature of the bottom. Caissons of wrought-iron will be sunk in the river, and on the water being removed by air pressure, the interior will be dug out, the caisson sinking by its own weight as the excavation goes on. When the mud and soft clay have been removed, and the hard conglomerate is reached, the interior will be built up with brick and cement concrete, the latter forming the core. The anchoring piers, to which the suspension chains are to be attached, are placed at each side of the roadway, and are necessarily of a very massive character. As to the lofty suspension towers, a description of the construction of the southern or Queen's Ferry tower, may be taken, except in the matter of the foundation, as applying to all. It is necessary to premise that the tower will consist of a group of four piers, each one of which will support four steel cylindrical pillars. The piers will be each 32 feet square, and will be placed at distances from each other, measured from their inside edges, of about 65 feet east and west, and 46 feet north and south. In other words, the piers will stand at the corners of a parallelogram, measuring about 120 by 110 feet. In building them, caissons 50 feet in diameter will be employed, and the hard conglomerate being reached in the manner already described, it will be hollowed out to a further depth of eight feet. Resting upon a circular foundation, a square of brick, with walls eight feet thick, will then be built, and the hollow chamber inside will be filled with concrete. In this way, the work will be carried up to high-water mark, where a stone plinth of about two feet in thickness will be laid. Above the plinth, the pier will be carried as a solid mass of brick, 25 feet above high-water mark. Upon this will be raised four lofty steel tubes, or columns, three feet six inches in diameter, placed at the corners of a square of about 23 feet, and securely bound together with horizontal struts and diagonal ties. The columns will rise perpendicularly up to the roadway, and above it those on the outside will converge gradually as the top is approached. The four piers and 16 steel tubes composing the tower will all be built and placed in the manner described. Diagonal struts will bind the four groups of pillars firmly together up to the line of the roadway. The lattice-girders already described will carry the road by means of cross-girders. Above the roadway, the groups of columns will be secured to each other by horizontal struts and diagonal ties, so as to form, in effect, one stupendous tower 560 feet in height.

THE ROADWAY.

Having seen that the two lines of rails from the shore to the anchoring towers are laid side by side in the usual way, upon platforms resting upon the top of the lattice girders, it is now necessary to follow them farther out. At the anchoring towers, the lines diverge, until at the suspension tower they are 100 feet apart, measuring from the middle of one line to that of the other. They run parallel at that distance until the tower on the Fife shore is reached, when they begin to converge, and come together again at the northern anchoring towers. The object attained by separating the lines is greater security against the lateral pressure of high winds. Each line passes through the groups of pillars on its own side of the great towers, having two pillars of each group on its right and two on its left.

In the great central spans, the roadway will be laid along the bottom of the huge lattice girders which will rest at either end upon the main towers. They will rise from nineteen feet at the ends to between forty and fifty feet in the middle, and will thus have the appearance of great arched fences. To support these girders, heavy steel chains will be passed from the anchorage towers—two from each—over the tops of the steel towers, and from them the girders will be suspended by means of perpendicular supporting bars and transverse tension bars radiating from the points where the lattice girders rest upon the towers. It will thus be seen that each line of rails and its supporting girder is hung upon two chains, the links of which take hold of a pin resting in a casting at the top of the towers. It need only be added that to give greater stability to the two central towers on Inchgarvie, the top of each is anchored to the bottom of the other.

As to the material employed and mode of construction, mild steel was selected by the engineer for the towers and chains, first, for the sake of its comparative lightness, and, secondly, that equality of contraction and expansion might thus be secured. When the towers and chains are in readiness, the great central spans will be floated out in sections which,

having been finished on shore, will simply need to be hung in their places upon the chains.

The undertaking is no doubt stupendous; but a bridge across the Forth is absolutely necessary to the completeness of the railway system of the country, and particularly to that of the North British Railway Company. When it is finished, there will be an unbroken route from London to Wick. The distance between Edinburgh and Montrose, Aberdeen and other towns along the northeast coast, will, as compared with the Stirling route, be lessened between thirty and forty miles. A further advantage of great moment to those who are familiar with the discomforts of a cross sea in squally weather, will be the avoidance of the ferry between Granton and Burntisland.

PROGRESS IN SCIENCE AND THE ARTS.

A RESUME OF PROGRESS DURING THE PAST YEAR.

The most interesting and novel investigation of the past year in the field of *Physical Science* was the remarkable paper of Dr. William Crookes on "Radiant Matter," a fourth state of matter, "as far above the gaseous state as that is above fluidity." By means of the most refined and ingeniously-constructed apparatus, he has succeeded in demonstrating: (1) that radiant matter exerts powerful phosphorogenic action where it strikes; (2) that radiant matter proceeds in straight lines; (3) that radiant matter, when intercepted by solid matter, casts a shadow; (4) that radiant matter exerts strong mechanical action where it strikes; (5) that radiant matter is deflected by a magnet; (6) that radiant matter produces heat when its motion is arrested; (7) and that in the exceedingly high vacua in which the phenomena of radiant matter present themselves, the molecules retain their chemical characteristics. Dr. Crookes's research is justly regarded as the most brilliant contribution to physical science that has been made in recent times; and London *Nature*, commenting upon the presentation of the subject at the last meeting of the British Association, accords to Dr. Crookes the most unqualified praise for the wonderfully delicate apparatus and experiments that he has devised for showing the movements of molecules in high vacua.

Worthy of special notice, likewise, is Mr. Albert A. Michelson's re-determination of the velocity of light, for which research an appropriation was made by Congress. His apparatus, methods, and results were fully detailed before the last meeting of the American Association. He found the velocity of light, from an average of 100 determinations, to be, *in vacuo*, 299,828 kilos. per second, which, taking 1 kilo. = 3280·87 feet, gives 186,298·5 miles per second.

In *Geography*, the year witnessed the accomplishment, by the Swedish savant, Prof. Nordenskjöld, of the passage of the Polar Ocean from the Scandinavian Peninsula to the Japan Islands, the most notable event in the history of Northern exploration that the century may claim. Another exploring expedition to the North Pole has been sent out under the patronage of the *Herald*, which will endeavor to reach the goal by way of the Behring Strait passage; and Pinto, a Portuguese explorer, has duplicated Stanley's achievement by crossing the African continent from ocean to ocean; and Forrest has discovered vast tracts of country suitable for agriculture and grazing in the interior of Australia, hitherto supposed to be desert lands.

In *Geology*, the most noteworthy event of the year was the consolidation of the several independent geographical and geological surveying bodies, directed by King, Powell, Hayden, and Wheeler, respectively, and controlled partly from the Department of the Interior and partly from the Department of Engineering. The reorganized survey has been placed under the directorship of Clarence King, and its future work will emanate from the Department of the Interior. The bill which provided for this much needed reorganization also provided for the completion of the work of the previously existing surveys, and for the publication of the results thereof. The geological surveys of Canada and of Pennsylvania, it should be noticed, were particularly active during the year.

In the field of *Chemistry*, the past year, like its immediate predecessor, also witnessed the addition of a number of new substances to the list of the elements; these additions are named scandium, norwegium, holmium, thulium, and uralium. How many of these will stand the test of subsequent investigation of their claims, remains to be seen. On the other hand, Mr. Lockyer, of London, has continued the spectroscopic investigations by which he is led to infer the essential sameness of all the so-called elementary substances. But perhaps the most interesting contribution of the year to pure chemistry was that of the brothers Meyer, of Zurich, on the vapor density of chlorine. These investigators, in some examinations of this element with a new apparatus devised for the purpose, found that, at a very high temperature, the vapor density of chlorine was permanently changed to almost exactly two thirds of that which it should be. This curious result has been held by some chemists to indicate that chlorine is not an elementary substance, but a compound; though this conclusion can not yet be considered as proved.

In *Technical Chemistry*, we note substantial improvements during the year in the utilization of blast-furnace slag for the manufacture of glass, cement, and the like, which has attracted some attention in England, through the successful operation of the inventions of Messrs. Wood, Britton, and Ransome. The publication of important improvements in the details of the ammonia-soda process, as devised and practiced by M. Solvay, to whom the commercial success of this process of manufacture is almost entirely due, attracted renewed attention to this growing industry. The advisability of introducing the manufacture of soda by the ammonia process in this country has been strongly urged by parties capable of judging of the probabilities of commercial success.

Vincent's procedure for working over the molasses residues from the manufacture of beet-sugar has been introduced in France with much success. *Dingler's Journal* refers to the process as one of the most important improvements lately made in technical chemistry.

In *Metallurgy*, the year will be memorable by reason of the substantial improvements brought out for the elimination of phosphorus from iron, which has ever been the *bête noire* of the steel-maker. The JOURNAL has been so full of information on this theme during the year that a mere reference to the topic here will suffice as a matter of record. The proposal of Mr. Hollway for Bessemerizing sulphurets likewise attracted much attention. Dr. Roessler's experiments in refining copper by the use of phosphor-copper also may lead to most important results.

In *Mineralogy*, several interesting new additions were made to the list of species during the year; the more important of which we name below: *Huntilite*, a new silver-ore found at Silver Islet, and named by Dr. Wurtz; *Fairfieldite* and *Fillowite*, new hydrous phosphates, found at the remarkable locality at Branchville, Conn., that had already added a number of new species to science, described and named by Brush and (E. S.) Dana; *Phosphuranylite*, a new uranium mineral from North Carolina, described by Dr. Genth; *Reinite*, a wolframate of iron, isomorphous with scheelite, found in Japan, and named in honor of its discoverer, Dr. Rein; and *Bernardinite*, a new fossil resin, found in San Bernardino County, Cal. Of new localities for minerals, we note the discovery of extensive deposits of cerite minerals in Utah, noticed by Mr. Newberry; the occurrence of amber in the cretaceous marls of New Jersey, noticed by Mr. Goldsmith; the identification of an interesting series of uranium minerals in North Carolina; and of *pyrophyllite* in the coal slates of Schuylkill County, Pa., by Dr. Genth; the alleged discovery of platinum in many localities in the extreme West; and of extensive beds of emery in Westchester County, New York.

In the field of *Engineering*, the long-mooted enterprise of an Interoceanic Canal across the American Isthmus attracted universal attention during the year, by reason of the meeting of an International Congress in Paris, to pronounce upon the most feasible route, and to inaugurate a movement for the actual undertaking of the work. The conference concluded, as our readers are aware, that a sea-level canal across Panama would afford the most practicable and desirable solution of the canal problem. Without entering into the merits of the questions of the method by which the conference arrived at its conclusion, it will suffice here to say that the selection of the route above named has been pronounced to be unfortunate and impracticable, by nearly all of the American participators in the Congress. So decidedly was this adverse sentiment expressed, that the effort to secure subscriptions to the stock of an International Company, formed to carry into effect the action of the conference, met with absolute failure on this side of the Atlantic, and it appears to have been seriously crippled thereby in Europe. It would be assuming too much to say at present that M. de Lesseps, the organizer of the conference, and the prime mover in the enterprise that has grown out of its proceedings, has any serious notion of abandoning it, though the prospects of the construction of the canal on the route selected appear, at present writing, to be very slim. The conference, however, if it has succeeded in popularizing its project, has had the effect of awakening a wide-spread interest in the subject of the interoceanic canal in this country, and in impressing upon our people the vast importance of an enterprise concerning which they were before either ignorant or at best indifferent. This state of affairs is being very properly appreciated, and an earnest effort, it would appear, is making to undertake the construction of a canal across the Isthmus under American auspices. In this laudable effort, the names of Admiral Ammen and Civil Engineer Menocal are prominent, as advocates of the Nicaraguan route; and that of Mr. Frederick M. Kelley as the champion of the San Blas route. There are apparently no insurmountable difficulties in the way of executing either of the projects last named. The Nicaraguan route has the *prestige* of official recommendation as a powerful support to its claims for consideration, having received the approval of a joint commission lately appointed by Congress to examine the reports of the various surveys of the Isthmus, and to select the most practicable route. The objections to it, briefly stated, reside in its length, nearly 140 miles, in the necessity of requiring 20 or more locks, and in the absence of good natural harbors. The San Blas route is the shortest possible one across the Isthmus. The canal at this point would be but 30 miles long, would be cut at sea-level, and would have admirable harbors on both sides. The objection to it seems to be confined to the fact that it would require the cutting of a tunnel of from 7 to 9 miles in length. Before dismissing this subject, it may be of interest to mention that Capt. Eads, of Mississippi-Jetty fame, has proposed as a rival project to the several canal lines, the construction of a railway across the Isthmus sufficiently large to permit the transfer of the largest vessels from ocean to ocean. The project of Capt. Eads, novel as it reads, has been pronounced to be feasible and practical by a number of eminent engineers.

The year has witnessed the completion of the extensive system of improvements at the South Pass of the Mississippi River, which, for some years, have been actively prosecuted, in accordance with the plans of Capt. Eads. The character of these improvements has been so fully presented and discussed in the technical journals that it would be a work of supererogation to do more than refer to them here. Thus far, Capt. Eads has certainly achieved the object he started out to attain, namely, to secure a navigable channel, sufficiently deep and wide to permit of the passage of the largest vessels up and down the river without obstruction. Time alone can demonstrate whether the jetty system, as established at the South Pass, will suffice to maintain a navigable channel.

Notable progress has been made also upon a number of important works of engineering. The St. Gothard tunnel has been so far advanced that the headings are now but a few meters apart, though another year will be required to complete it; work has been resumed on the Hudson River tunnel, after several years of inactivity by reason of litigation; the Davis Island dam, for the improvement of the navigation of the Ohio and its tributaries, has been materially advanced toward completion. Another telegraphic cable has been laid across the Atlantic, several important links connecting the British possessions in South Africa with the European cable-system have been partially or wholly completed; the extensive network of underground telegraphs which the German government has been engaged for some years in laying, to connect all the important cities of the empire, has been substantially completed; and in this country also some attention has been directed to the subject of underground telegraphy by the rumored sale of the Brooks system (of liquid insulation) to a powerful corporation with the view of its early introduction. The invention of the writing telegraph of Mr. E. A. Cowper is also worthy of notice.

The projects for the creation of an inland sea in Algeria, the flooding of the Sahara from the Atlantic, the construction of a railway into the Soudan from Algeria, received the usual amount of discussion, but are

apparently no nearer realization than a year ago. General Fremont, it may be noticed, has proposed a project somewhat similar to that first named, for creating an inland sea in Arizona, for which many important climatic and commercial advantages are claimed.

Sanitary Engineering.—In a most useful and admirable exposition of the principles of sanitary engineering, just published by Mr. A. Converse, the author remarks, at the outset, that there is perhaps no subject of equal importance that is so imperfectly understood by the public as that of sanitary drainage and its relation to preventable disease; and this statement will hold good when applied to a fair proportion of people who rank as intelligent and well informed; for even among this class there are many who are either totally ignorant of, or lamentably indifferent concerning, a subject which vitally affects the health and comfort of themselves, and of the community of which they are members. Because of the eminently practical character of Mr. Converse's pamphlet on this subject, we cordially welcome it as likely to prove very useful in inculcating, in these quarters, correct knowledge of filth diseases and their origin, of the objects of household and city drainage, and of the important benefits in respect to the public health that have invariably followed the introduction of proper provisions for the effective removal of the filth accumulations of cities and towns throughout the world.

The improvement of the sanitary condition of their cities has come to be regarded now as one of the most important duties of municipalities. The time is not long past when a number of virulent diseases which still yearly claim thousands of victims were complacently believed to be the mysterious dispensation of Providence. Now, we have demonstrated that they were and are the natural and inevitable results of the ignorance of man. The mission of sanitary science is to banish them from the mortuary record. In this country, the difficulty of bringing the sanitary condition of cities and towns to that degree of perfection that it should possess is greater than in the differently-governed municipalities of Europe, where the sewerage systems of a number of populous centers have been brought to a high state of perfection. With us, the conditions of city government are so different, the change of officials charged with the construction of public works is so rapid, the execution of the work by contractors selected by favor is frequently so inferior, and the maintenance of uniformity in system so frequently impossible for these and other reasons, that the drainage systems of American cities, with rare exceptions, are highly imperfect. In these particulars, it would be expecting too much to hope for much improvement until there is a much more general diffusion of knowledge among the people of the principles of sanitary science. It is here that Mr. Converse's little hand-book may do a useful work, and we should like to see it widely circulated and read.

PETROLEUM NOTES.

COMPARATIVE SYNOPSIS OF REPORTS FOR OCTOBER AND NOVEMBER, 1878 AND 1879.

42 Gallons = 1 Barrel.	1879.		1878.	
	October. 31 days.	Nov. 30 days.	October. 31 days.	Nov. 30 days.
Production for the month	1,836,378	1,710,480	1,367,797	1,348,950
Daily average	59,238	57,016	44,187	44,965
Stock at the wells	250,922	291,922	83,909	83,909
Iron tank stock	7,543,712	7,759,547	4,137,860	4,205,400
Total stock	7,794,634	8,051,469	4,221,769	4,289,309
Number of producing wells	11,860	11,960	10,188	10,276
" " drilling wells	313	372	282	297
" " dry holes	17	21	25	18
Aggregate daily production of new wells	5,148	4,150	2,878	2,963
Average " " "	22 1-10	20	12½	12
Number of rigs building	370	437	308	305
Total shipments out of the region	1,662,269	1,453,645	1,747,390	1,281,410

—*Stowell's Petroleum Reporter.*

The Market at New York.—The *Shipping and Commercial List* of the 24th inst. says: "With the exception of a moderately active speculative movement in United Certificates, business has been dull throughout, with a reduction of values.

"*Refined*—The demand has been light, exporters evincing an indisposition to enter into heavy negotiations so near the close of the year; and with a depressed condition of affairs, and unprecedentedly heavy stocks abroad, as reflected in the cable advices, prices are considerably lower. New York February and March delivery closing liberally offered at 8¼ cents, with December re-sales, buyer's option, in odd lots, placed at the same figure. Philadelphia and Baltimore nominally 8⅛@8¼ cents. The sales aggregate about 25,000 bbls.; mostly re-sales, mainly New York late loading, at 8¼@8⅛ cents. Cases are quoted 11@12½ cents, plain to fancy brands; about 75,000 all kinds sold on private terms.

"*Crude*—Remains quiet at 7¼@8⅜ cents in bbls.; recent sales about 10,000 bbls. on private terms.

"*Naphtha*—Is dull and nominally 6½@6¾ cents.

"*United Certificates*—(Crude)—The market opened with $1.16½ bid, and $1.16⅜ asked, advanced to $1.17½, declined to $1.10, and closed $1.13¾ bid, and $1.14⅜ asked. Sales New York and Oil City Exchanges about 1,740,000 bbls.

EXPORTS OF REFINED, CRUDE, AND NAPHTHA.

	1879. Gals.	1878. Gals.
Since our last	4,107,469	.....
Previously since January 1st	278,337,566	208,637,374
From other ports	113,476,622	113,029,195
Total	395,921,657	321,666,569

"London, Dec. 19.—Refined spot dull, 6½d.; first two months dull, 6⅝d.

"Antwerp, Dec. 19.—Refined dull, 22½ f."

GENERAL MINING NEWS.

ARIZONA.

Strike in the Dragoon Mountains.—The Tombstone *Nugget* of December 4th says:

"Within the past few days, there has been a great excitement caused by the striking of a rich deposit of mineral in the mine owned by the Silver Cloud Mining Company, in the Dragoon Mountains, directly across from this place, thirteen miles distant. Being on the side of the mountain, the ledge is tapped from the surface; and, by blasting a cut about ten feet into the hill, and say ten feet down, they have come upon some of the richest ore yet discovered in this district. Bottom cut is in ore, and shows a ledge seven feet wide; and at the bottom, leading into the hill, the capping seems to uncover the mineral, the extent of which is not yet determined, as it was not sufficiently uncovered when we visited it. A dozen or more sacks of ore had been taken out under this projection beneath the capping, and probably not an ounce of the ore will assay under $1000, all of which will be shipped to San Francisco. Assays of it have been made running very high. The road leading from Tombstone to the mine is now well dotted with teams, parties going to take a look at this rich bonanza; all the trails are filled with prospectors bound on a prospecting tour through the Dragoons. probably one hundred prospectors are now in the mountains. A town-site has been located in a delightful spot on the level below the Silver Cloud mine."

The Globe District.—We are indebted to the *Silver Belt* of the 13th inst. for the following:

"The Globe District will soon have five additional mills and another strongly spoken of. If this latter mill is constructed, and we are assured it will be if the mine now being prospected with flattering indications will give a sufficiency of $50 ore to run ten stamps, we will have, in the near future, ten mills, including those already here.

"The La Plata Mine.—This location bounds the Mack Morris easterly, and shows a continuation of the veins of its neighbor. A shaft sunk near its western boundary has exposed a vein to the depth of 35 feet. Ore of a high grade has been found from the surface to the bottom of the shaft and in lateral drifts east and west. The main shaft, situated about the center of the ground, has attained a depth of 80 feet. Well-defined walls of syenitic rock inclose here a vein exceeding eight feet in width; a like grade of ore is here found, similar to that mentioned above. The gangue, at the bottom, is a granular quartz and white spar; the quartz is of a grayish-white color, and in this resembles somewhat Comstock ore, as well as in its texture, except that extracted below the water-level. The ore found in this mine has the same general appearance as that from other portions of the Richmond Lode westerly. Below water, it becomes more allied to a silver glance, but also carries, combined with it, a sulphuret of iron. Many crystals of ruby silver of a fine luster, and of a beautiful cochineal red, are found disseminated in the vein-rock. Fine specimens of native silver are also found. The developments upon the ground are mainly due to its present possessors, who have, thereby, greatly added to the value of this very promising property."

The Irene Mine.—The vein in this mine has a bold outcrop the entire length of the location of 1500 feet, and, from its outcrop, it may be judged to have a width of from 10 to 20 feet. The topography of the ground is well suited to the uses of a tunnel, now in process of excavation, and to be run a distance approximating 300 feet, to strike the vein at a depth of 250 feet. A shaft is being sunk upon the vein to connect with the tunnel. This shaft is now down 78 feet, and, at this depth, is in ore nearly its entire dimensions of 5 by 7 feet. The character of the ore is a sulphuret and carbonate of lead; the latter, no doubt, carries, combined with it, a chloride of silver, while the former is supposed to be argentiferous galena. Ore taken from near the bottom of shaft, and center of vein exposed by it, has been assayed, and gave $62.83 and $92.99 per ton, respectively.

CALIFORNIA.

The Bodie District.—From the mining summary in the *Standard* of December 13th we condense as under:

"Several parties who were prospecting mines in uncovered shafts have ceased operations in consequence of the snow, while a number of the mines operating more extensively, and which have been making some needed repairs on their buildings or erecting new ones, have been pushing work with great haste from the same cause. Operations have been of pretty much the same character as usual, with the exception that the Syndicate mill has stopped crushing Syndicate ore, and has commenced working Standard rock. This change was not made because Syndicate ore would not pay to mill, but because it was considered by the Syndicate Directors to be to the best interests of the camp to have the mill run on Standard ore, as it would keep the monthly bullion product from falling off greatly, which it would otherwise have done, owing to the breaking of the driving-shaft of the Standard mill. As it now is, the product for December will probably be in excess of the November yield, as the Standard mill is expected to resume crushing in about ten days. The last month's bullion product of the Bodie, Syndicate, and Standard mills was $235,451.43. If there is no drawback, it will probably reach $250,000 per month. The Syndicate mill is likely to continue crushing Standard ore until the completion of the Bulwer-Standard mill, which can not be expected much before the 15th of January. The Noonday will add a considerable quota to the bullion output this month. The mine is developing into a property of enormous value. A fine ledge has been uncovered in the South Noonday, and the prospects at the Boston Consolidated are very bright. A ledge of rich ore has been discovered on the 400-foot level of the Bechtel, which, Captain Messic is confident, is the continuation of the big Standard ledge. What gives color to this theory is, that the ledge shows a decided tendency to dip to the west, instead of to the east, as the other ledges in the Bechtel do. Whether this belief is well or ill-founded, the development is a splendid one. Extraordinary developments are foreshadowed in the Tioga, and Black Hawk is making a fine showing."

COLORADO.

The Independence Mine.—The Georgetown *Miner* of December 20th says of this mine:

"It is located in East Argentine District, near the summit of the main range, and is owned by private parties. Quite a large amount of development has been done on the property, and it is said to have yielded from $400,000 to $500,000 since its discovery. It is opened by an adit, running southerly, which is now in a distance of 500 feet, and work is still progressing on it. For a distance of 400 feet, commencing near the mouth of the adit, stoping has been done above the tunnel level to an average height of about fifty feet; 150 feet from the mouth of the adit is the bottom of an air-shaft which is 100 feet deep and connects with the surface. Forty feet farther in, is a shaft sunk from the level of the adit, a depth of eighty feet, and at this point the ground has been stoped out to a horizontal distance of 150 feet, and a vertical distance of forty feet. Sinking is progressing in the No. 3 shaft, which is 360 feet from the mouth of the adit, and drifting is in progress in the breast of the adit. Stoping is being prosecuted above the main level from stopes No. 3 to No. 9. The ore is principally somewhat fine-grained galena, inclining to sulphurets, and averages from 67 to 275 ounces of silver per ton. Some of the mineral carries as high as 60 per cent lead. The concentrating ore runs from 67 to 113 ounces of silver per ton."

The Dunderberg Mine.—The work on this mine is rapidly progressing. No. 1 shaft has attained the depth, to the 5th level, of 260 feet. The discovery shaft is going down, with a force of six men on two shifts. This is now 126 feet below the D level. The B level is being driven in to connect with the shaft, and six men are working at this point. It is expected that connection will be made about the first of February next. When this connection is made, all the ore can be brought through the A level to the dressing-works, instead of packing the ore down the mountain from the discovery shaft, as is now done. This connection will also insure thorough ventilation of that part of the mine. The shaft will then be continued down to the A level, the A and D levels being 100 feet apart.

The breasts of the drifts and stopes are showing up well in mineral. When the concentrating works are fairly started, and connection made between the dis-

covery shaft and the A level, the ore reserves now in sight can be worked economically.

THE LITTLE PITTSBURG.—A telegram from this mine, dated Leadville, December 19th, says:

"In No. 1 west new discovery, 72 feet west of main drift, connecting No. 2 with discovery shaft, and 32 feet south from No. 1 west at station No. 10, we have struck a body of high-grade ore below the old level; it is of the same quality as found in No. 4. There are 12 feet of it exposed, and we are not at the bottom yet. It is pitching rapidly to the west and south, and promises to extend through the whole of the mine lying west of discovery shaft. I look upon it as the most important find made upon the property for many months."

The American Flag Gold Mining Company has just received the patent for its property from Washington. Work is progressing favorably at the mine.

No important change has taken place in the workings of the Morning Star. The mine is producing from thirty-five to forty tons regularly each day, and has been doing so for a long time. A great deal of timbering has been done in the mine during the past month, and the mine is now in an excellent condition.

The shaft on the Wildcat is the deepest on the hill, being 270 feet. Over the claim is a good shaft-house, with a small engine. At the great depth of the shaft, it was found impossible to control the water, so sinking the shaft was stopped, although at the very bottom of the shaft the best of indications were found. At 112 feet, a contact was cut, and upon this two drifts are now being run in a northerly direction. Although upon contact, the material taken out contains but little mineral, and is of no value.

HAYDEN'S PASS.—A correspondent of the Silver Cliff *Miner* of December 10th says: "The Hayden Tunnel is being pushed to its utmost extent. The ore-body is increasing in size and richness. This mine is producing some of the finest ore I have seen in the range. Work is to be prosecuted on this mine and others owned by this company of energetic miners during the winter months. The Highland Mary, on the right or north of the pass, shows a body of ore—galena and sulphurets—milling 23 ounces of silver to the ton. The No Name, opposite the range, has from twelve to thirty inches galena ore, carrying sulphurets milling on the surface 51 ounces of silver to the ton. This mine is about four thousand feet below timber-line on the San Luis side of the range. The ore can be packed across very easily. The Cliff mine has been bonded for $25,000, with only an assessment worked. Several sales have been made, ranging from $1000 to $5000, and these merely prospects. Four miles south of the pass, carbonates of lead and iron have been found. The Iron mine mills 38 ounces of silver at 10 feet. Work on this has been abandoned for the winter, cold weather having overtaken them before their winter quarters were finished. A little lower down the range and south from the Iron mine, one of the richest strikes in the range was made some ten days ago by the Saguache & Milwaukee Company, having struck a body of carbonate ore milling 200 ounces of silver to the ton. This strike was made at a depth of 75 feet; the extent of the ore-body is yet unknown. Shafts are being sunk as fast as three shifts of good miners are able to put them down. The big galena mine, at the foot of the pass on the San Luis side, has a pay-streak of 24 inches, and is turning out some very rich ore."

THE LAKE VIEW AND RED SKY LODES.

We are indebted to the *Reveille* of the 18th inst. for the following:

"Recently, quite an interest has been excited in regard to the mineral veins and deposits in the neighborhood of the Twin Lakes. It has long been known that valuable veins of galena and copper existed in that locality, but until recently no great amount of development has been made. During the past summer, Colonel McNassar and others have been developing a number of lodes in the neighborhood of the lakes, and several small sales have been effected. These mines are located in a gulch, which is just opposite the old town of Dayton, which is about six miles away from the lodes. The vein is a large, strong, well-defined true fissure-vein, about eight feet in width, between walls, and having an ore-vein proper of about twenty-two inches in thickness. The ore is principally a gold ore, although a small quantity of silver is also found. The country rock is chiefly granite, porphyry, and quartz. The vein cuts the mountain at right angles, and can not be very economically opened by tunneling. The discovery shaft of the Lake View is just upon the apex of the ridge, and that of the Red Sky near the base of the mountain, both upon the same vein. There is an abundance of good timber in the neighborhood, and a good supply of excellent water. A wagon-road, on an easy grade from the lakes, can be made within a distance of six miles. In less than a year, the mines above referred to will be within ten miles of a railroad. In addition, we may say that sampling works will be erected near the upper lake early in the spring."

THE TEN MILE DISTRICT.—The Central City *Register-Call* of December 20th says: "It is believed that this district, next season, will develop mines fully as rich as those located on Fryer or Breece Hill, at Leadville."

THE SMELTING WORKS AT KOMO are treating a very high grade of ore which comes from the White Quail, running from 74 to 150 ounces per ton in silver, and 50 per cent lead, the Tiger from 65 to 110 ounces, while the third-grade ore from the Robinson ran 90 ounces per ton, and specimens could be selected that would give 1100 ounces per ton, to say nothing of other mines in that locality that gave heavy mill runs. Most of the mines in this district run a large percentage in lead, which makes the ore very easily worked and valuable, as the lead is necessary for flux. The smelting works of Messrs. Gaff & Co. have a capacity of 50 tons per day, but were somewhat embarrassed for the want of coke—a want which will soon be supplied, as there is an immense amount of charcoal being burned in the vicinity.

CARBONATE HILLS MINES.—The Leadville *Herald* of the 19th instant says:

"*The Forsaken Mine.*—A new ore-house has been put up at the upper shaft of this mine, and a new one is being built for the lower shaft. The hoisting from the lower shaft is done by the engine on the Buckeye Belle. The shaft is sixty-eight feet deep, and in a fine body of mineral. One drift is being run south toward the Buckeye, and another north, that has connected with the workings from the other shaft. Both shafts are being worked, about fifteen tons daily having been taken out so far this month, mostly from the upper shaft. From this till the first, not less than thirty tons daily will be mined, the hoisting of ore from the lower shaft commencing to-day.

"The most extensive improvements being made on the hill are upon the Niles and Augusta claims, the two properties having recently passed into the hands of some St. Louis capitalists. The new shaft-house just being completed is thirty-four by sixty feet, and very substantially built. It is, in fact, one of the best constructed mine buildings about Leadville. From the shaft, car tracks run to the dump pile and the ore bins. A new arrangement has been made for dumping the buckets, which is an improvement on the old method. The shaft on the Augusta, some seventy-five feet distant, is being worked, but mostly in prospecting the body of mineral, running drifts, and opening the mine for future development, when the new shaft will connect with the workings. The depth of this shaft is sixty feet, and a small quantity of ore is being taken out.

"The shaft on the Johnnie mine is down 150 feet, and at a depth of 120 feet contact was cut, and a drift extends 40 feet south upon a fine vein of mineral, which at that point dips at an angle of 45 degrees, and has been followed 35 feet farther, disclosing a body of about 6 feet of carbonate of copper. A mill-run of this ore returned $70 to the ton. At near the same point of the first incline, another drift has been run 40 feet upon a body of mineral varying from 2 to 5 feet, which gives 48 per cent in copper and milled $99.36 to the ton. A cross-cut at 35 feet from the main shaft has developed a vein of four feet of galena and sand carbonates, showing assays of 60 ounces of silver and 62 per cent lead, to 444 ounces of silver and 60 per cent lead. Another cross-cut opposite reveals another vein of carbonate of copper, about the same value as the first."

THE BRECKENRIDGE PLACERS.—A correspondent, writing to the Denver *Tribune* from Breckenridge, under date of December 9th, says:

"The town of Breckenridge is situated less than 100 miles from Denver, and is reached by traveling on the South Park Railroad to Como, then 17 miles by stage over the lowest pass in the Rocky Mountains. The town of Breckenridge is near the center of the mining country, and the work of preëmpting, surveying, and sinking shafts, tunnels, etc., extends up the Blue a distance of six miles, and on either slope of the river, to near the timber-line, and below the town a distance of four miles. This extent of country is dotted at various points by discovery shafts sunk on valuable ore. The Fuller Placer Mining Company upon Negro Hill, two and one half or three miles southeast of the town, has probed the hill by means of a diamond drill to the depth of 220 feet, discovering a valuable bed of carbonate ore, running well in gold, making up a value of $5000 per ton. Near by is the Washington shaft, which shows, at a depth of forty feet, a large and profitable galena ore in contact shape.

"Conger Camp, situated between the fork of the Blue River and Indian Gulch, four miles above the town, is well known for its rich chlorides, the value of which is great, as has been ascertained at Professor Hill's works at Denver.

"Farther up the Blue, a distance of two or three miles, I visited the Fredonia mine, which is probed by a tunnel thirty feet in length. It shows a large body of ore, six to seven feet thick, which is surrounded by proof of great permanency.

"The great galena or lead bed extends for many miles along the range and at an altitude below timber line, and is in quantity immense, carrying a sufficient quantity of silver and gold to make up a value, less the lead, of from $40 to $70 per ton. Nor is the lead confined to the named altitude, but, in large quantities, is found in Gibson Hill, and on the north side of French and Blue rivers. Opposite the junction of the Blue and French Gulch, three fourths of a mile from the town and on the south side of the Blue, are situated the attractive mine and workings of Judge Shock & Brother.

"Their work shows a fine free-gold ore, virgin silver, and chlorides in the same stratum. Its value is from $400 to $800 per ton.

"Directly opposite, and in the fork of the Blue and French Gulch, north of Messrs. Shock & Brother's work, is situated the Belle of Breckenridge."

DAKOTA.

THE BLACK HILLS.

THE SILVER DISTRICT.—The *Pioneer* of the 13th inst. says:

"The main shaft of the El Refugio mine is down 90 feet, all in ore. A tunnel has been run in on the side of the mountain, which will tap this shaft about 100 feet below its present depth. The tunnel is now in 140 feet, 72 feet of it showing ore of the same value as that shipped to Omaha, about ten tons of which showed an average return of $123.90 per ton. The roof, bottom, and sides have no break in the ore-body.

"The Florence mine lies directly in front of the El Refugio, and was recently incorporated. The company has erected a fine silver-mill. This mill made its first clean-up lately, and the result, in the shape of five heavy refined bars of silver, was $5060, and the bars of an average fineness of .986.

THE GOLDEN TERRA VS. GOPHER CONSOLIDATED.—This case, involving two million dollars, has been decided in favor of the defendants. This is a curious case. The Golden Terra people located first of all the vein known as the Golden Terra, and afterward another claim known as the Gopher, the second claim running parallel with the first, but extending beyond it. It was subsequently found that these two veins united and made one vein, and all legal claims of the locators were limited to the original boundaries of Golden Terra. The defendants, by the advice of the owners of the Golden Terra, took up an extension of this vein, and were successful in finding valuable ore, and now an attempt is made to drive them from their work on the ground that they are on the Gopher vein. After an able statement of the law and the facts, Judge G. C. Moody gave judgment in favor of the defendants.

"The Elkhorn mine, of Bald Mountain, has a force of men drifting, blasting, and taking out ore as fast as possible for the new mill, and 200 cords of wood are being cut by the wood-choppers ready for the start-up, which will be on or about the 10th of January.

"Some exceedingly rich silver ore has been struck in the Aurora mine, a little to the northward of the silver-mill.

"The owners of the Atlantic mine are reported to have leased a mill, with the expectation of having it at work on their ore in a short time.

"The tests of ore from the Scandinavian mine, on Elk Creek, at the Union mill, showed $5.53 to the ton; at Cassell's mill, on a small run, $12 to the ton; and some that was prospected in the pan, $6.50 to the ton.

"The tunnel of the Cashier mine is in 350 feet, and good ore shows up in every direction. Negotiations are in progress between the owners of the Anchor mine and Lake Superior parties with a view to purchasing the property. The Pecacheo mine is looking well. To-morrow, the work of reducing the ore in one of the mills at Central will be resumed. It is reported that the richest mine yet discovered in the Hills is the Flora Belle, which is situated between the De Smet and Cheyenne mines, on Deadwood Gulch. One of the best mines in the Hills is the Charter Oak, situated on Silver Creek, in the same belt with the famous Minnesota mine. We speak from actual examination of the rock.

"The ore of the Minnesota mine, near Rochford, is said to have cleaned up $13 a ton on the first run.

"The Homestake Company paid out $70,000 on Wednesday to their employés. This company has increased the pay of the men who are working in the open cut. The miners are receiving $4 a day, and the shovelers $3.50.

"The last clean-up at the Homestake Number 2 mill, which is running on high-grade ore, was immense, amounting to $12,000 for a fifteen days' run.

"The King brothers, at a depth of 96 feet in their mine on Spruce Gulch, have struck a vein of rich porphyritic ore, abounding in free gold.

"The tide of immigration is pouring into the Hills at a rate unprecedented in the history of this country. It is a good place to come to."

The *News* of the 11th inst. says:

"The Giant & Old Abe hoisting-works are the largest in the Hills. It is all inclosed. Nearly all the machinery is here, which is very heavy, some of the pieces weighing from 8 to 12 tons each. It is over a 3-compartment shaft, one part to be used for pumping.

"At the Highland mill, the foundations are about complete and are very heavy. Masons are very busy at work; sills are down, anchor-bolts are in place; and when this mill is finished, it will be the nearest to perfection in mechanism of any quartz mill ever constructed. The five properties now principally owned by Messrs. Haggin & Hearst are the Homestake, Deadwood, Golden Terra, Highland, and Giant & Old Abe. On ore from these five properties, 380 stamps are pounding away day and night. An average of 2½ tons per day to the stamp makes the clean-up a little over $200,000 per month, with an expense of about one third, and a net profit of at least $130,000 per month. When the new 110-stamp mill of the Highland will add its ponderous crushing capacity of 360 tons per day, the output will be at least $75,000 more per month, and at very little additional cost."

MISSOURI.

THE MISSOURI ZINC MINES.—The *Miner and Mechanic* says: "The turn-in of jack, from Granby, for the week ending December 1st, was about 400,000 lbs., equal to twenty car-loads!

"The turn-in of mineral was about 75,000 lbs.

"New discoveries and strikes are being made on the Prairie. The Prairie mines never were more promising.

"On the Davis land, the turn-in of mineral is steadily on the increase.

"The same is true of every section of the mines we heard from, by diligent in-

quiry. We can not give names or figures, but are fully satisfied that the mines of Granby are doing better than they have for years, and that the miners here are making more *per capita* than any other Southwestern mine. Of course, the splendid weather, low water, and high prices of mineral are sufficient cause for such a happy result.

"The Martindale Zinc Works are again in operation with a force of 150 men. These works will be able to consume a large amount of Southwest Missouri zinc ore during the coming year. A gradual advance in the price of jack at Granby and other mines may be expected.

"Neutral mineral in Joplin brings $34 to $35."

NEVADA.

THE COMSTOCK.—The Gold Hill *News* of December 17th summarizes the situation on the Comstock as under:

"The recent severe break in mining stocks has undoubtedly been aided if not caused by the intended shutting down of the Savage mine and the consequent expected flooding of the Hale & Norcross. The latest information in regard to the movement is, that Superintendent Kelly has received instructions to continue pumping until further orders. It begins to look as though the Savage pump would be kept in operation and consequently the Hale & Norcross would be allowed to go on prospecting. The mine is already preparing for a plunge to the 2400 level on the south line. The importance of such a movement is obvious. All this is likely to have a tendency to restore confidence and lost values, but the rally will be slow until it is assured that the meeting of the Savage and Hale & Norcross managements have come to an understanding and that the mines are not to be flooded.

"The situation, aside from that in connection with the Savage and Hale & Norcross above mentioned, remains unchanged, and there is no new feature along the lode worthy of especial comment, except along the Hardy vein in Ophir and in the Union-Mexican winze from the 2000 level, where improvements are noted.

"In some of the mines, less than the usual amount of work is being done; but these mines are mostly those south of the middle. The retrenchment system is telling in certain places, and there seems to be a sort of letting go to get a better hold."

THE OPHIR MINE.—The annual meeting of this company was held in San Francisco, on the 17th inst. From the superintendent's report, published in the Gold Hill *News* of the 18th inst., we make the following extracts:

"During the past year, and up to December 1st, 1879, the Ophir mine has yielded $19{,}212\frac{1400}{2000}$ tons of ore. Of this ore, $19{,}175\frac{1400}{2000}$ tons have been milled, leaving on hand, at the mill, $37\frac{1300}{2000}$ tons, valued by assay at $2916.64. This ore has been extracted from the so-called 'Hardy' vein, above the 2100 level—1050 tons being taken from the 1900 level, 11,847 tons from the 2000 level, and $6278\frac{1400}{2000}$ from the 2100 level. There yet remains a large quantity of ore in place above the 2100 level, the amount of which can not be accurately determined, as the formation of the vein is very irregular. The ore reduced has yielded bullion to the value of $1,283,246.07, or $66.87 per ton, the yield being 78 per cent of the assay value of the ore, no allowance being made for moisture. The value of the gold in the bullion was $564,149.57, and of the silver, $719,096.50. In addition to the ore extracted, there have been raised from the mine, during the past year, 60,478 tons of waste rock.

"'Our explorations in depth will be continued during the coming year with all possible energy, and, at the same time, the different levels opened, and the ground thoroughly prospected in all directions. The great improvement met with in the character of our ground, as greater depth is attained, gives reasonable hope for a favorable result in that direction, while the amount of ore still in place in the Hardy vein above the 2100 level, and the strong probability of its extending some distance below that level, give us reasonable hopes of greater prosperity during the coming year.'

"The report concludes as follows: 'In my last annual report, I stated that the probable yield of the mine during the ensuing year would be more than sufficient to pay our running expenses and render assessments unnecessary. By referring to the secretary's statement of receipts and disbursements, you will see that notwithstanding the immense amount of work done in the mine during the year, and the extraordinary expenses incurred, my anticipations have been more than realized, we having been able to pay a dividend of one dollar per share, amounting to $100,800, and still retain a balance of $134,892 in the treasury.'"

THE EUREKA DISTRICT.—The *Sentinel* says:

"We are in receipt of some splendid samples from the recent strike in the Eureka tunnel. The average width of the vein, at this writing, is about 3 feet, pitching back into the mountain. The main tunnel will be driven ahead to intersect it. It is thought the ledge will be cut in the face of the tunnel within 40 feet, though the new contract is for 100 feet. The strike was originally made in a slight upraise from the tunnel. The ore having been found to incline in the direction of the tunnel, this upraise was abandoned and the new contract let. The finding of good ore in Prospect Mountain, at a depth of 800 feet from the surface, is one of the most important features of this year's development in Eureka District. It means a great future for this section.

"The Prospect Mountain Tunnel Company has a contract to let for running an additional 100 feet; also, a side drift of 50 feet, more or less.

The *Leader* of the 17th inst. says: "The big water-jacket, a furnace capable of reducing from 80 to 100 tons of ore per day, was started up at the Richmond this morning. This gives employment at once to about 20 more men, and will increase the bullion output of the works over one third. The Richmond mine is literally teeming with high-grade ore in such quantities that the furnaces can not begin to handle the output, and there is enough in sight to keep the works in full blast for a year to come. Besides, the company is reducing a large amount of outside ores, it being the only purchaser in the market. Its liberal treatment of small mine-owners has been of great benefit to the district, resulting in the working of properties that would have been idle had it not been for the market furnished by the Richmond."

"The Ruby Hill train unloads 100 tons of ore daily at the Consolidated dump. The freight trains yesterday morning took out 28 loads of lead and bullion, besides a number of empty cars. Heavy shipments of lead are going forward from Eureka, furnishing the bulk of return freight to Palisade. The Richmond Company is the largest wood-buyer in the market, its annual consumption running up into the thousands of cords. Active steps are being taken to consolidate the Uncle Sam and Albion interests, and, we learn, with the best prospects for success.

"A new whim has been put up at the Bowman main shaft, and the superintendent has let a contract for sinking the shaft 100 feet deeper, with a view of prospecting the mine more thoroughly. The superintendent informs us that they are doing some extensive work in the lower workings of the Hoosac, with the best prospects. A fine seam of ore is being followed, which gives promise of good results in the near future. It is the intention of the Bullwhacker Company to commence shipping ore to the reduction works in a few days. It has a considerable quantity on the dumps, and the mine is looking exceedingly well. Work is going on steadily at the Dunderberg and Connolly, and a regular shipment of ten tons per day is being brought to the Richmond furnaces. At the Silver Conner, there is no particular change to note. They are still sinking through good ore in the old winze, and are getting out the usual amount of ore. The K K Consolidated commenced shipping ore to the Richmond furnaces to-day. A large lot will be forwarded."

NEW MEXICO.

THE NEW PLACERS ON THE RIO GRANDE.—The Denver (Colo.) *Tribune* says: "The last mining discovery that commands intelligent attention and promises a profitable outcome is in what might be termed the Rio Arriba District or Upper Rio Grande, New Mexico. It is a gold-bearing placer, extending along the river, and having its longitudinal center near the line dividing the counties of Rio Arriba and Taos. Claims have been located for a distance of nine miles, having the river for a vertical center, and extending a distance of 1500 feet into the adjacent mesas and hills. The southern extremity, located at this writing, is to within a mile of where El Embudo debouches from the east into the Rio Grande. With the exception of about a mile of the lower portion of the located placias, the district is known as the Cienegilia grant, as surveyed. The sand-bars and solid hills, especially to the west, each contain free gold in paying quantities when worked with hydraulic power. This confidence finds verification in claims staked and bearing the names of Henry M. Atkinson, Surveyor-General; W. W. Griffin, of the First National Bank of Santa Fé; L. Bradford Prince, Chief-Justice of the Territory; ex-Governor Martin and ex-Senator Hitchcock, of Nebraska; Henry L. Waldo, Attorney-General; Colonel William Breeden, and Dr. M. A. Bartleson. Some or all of these gentlemen, and possibly others, have filed articles of incorporation with the Secretary of the Territory, under the general Incorporation Act, for a ditch company. The opportunities for constructing a ditch, and the securing of an abundant supply of water without interfering with irrigating necessities, are certainly all that could be desired, and can be attained, according to engineers' estimates, at an expense of $30,000, with a head of 231 feet opposite Rincenada. The ditch will be seventeen miles in length, and built upon the west bank."

New discoveries reported every day from the vicinity of Silver Buttes, and also in the Sandia range.

THE HANSON MINING DISTRICT.—The Las Vegas *Optic* of December 19th says: "At a meeting of the miners, held in Las Ladrones Mountains on December 11th, this district was organized with the following boundary lines: On the north, by the road from Belen to the Little Colorado; on the east, by the Rio Puerco; on the south, by the Cañon Delagua; on the west, by the Bear Mountains.

"The mines in this district are new, never having been discovered by the Mexicans or Spaniards, and will be within twelve miles of the A., T. & S. F. RR., when finished to Sabinal. They are situated on government lands, and are high-grade ores."

THE TECOLOTE GOLD MINES.—A correspondent writing to the *Optic* says:

"I have examined the carbonate lodes and find them well-defined and carrying some gold, but no silver. The quartz lodes are plenty; the hill-sides covered with them. The Pelican now shows a 4-foot, well-defined vein, and some free gold that can be seen with the eye. The miners held a meeting on the 10th inst., to organize a district. Several lots have been staked off, on which to erect buildings, and material is being gotten out for that purpose. The veins and lodes are plenty, but it requires labor and capital to develop them; and for men of this kind, there is a large field to operate in."

THE LOS CERRILLOS MINES.—A company of Santa Fé capitalists has laid off a new town-site, 360 acres, on the Gallisteo.

A party of Leadville capitalists are now in these mines, buying all the mining property they can get, at any figures. Also, capitalists from St. Louis are on the ground and investing rather lively in the mines. Miners are now receiving seven dollars per foot for sinking shafts. Emigration pouring in lively.

THE MOGOLLONS DISTRICT.—The *Grant County Herald* says: "We are informed that over one hundred locations have been made in this district, and that fifteen mines are in course of development, and are showing metal. The work upon one mine is by tunnels, in one of which the foot-wall of the vein has been reached, and twelve feet of work done in the metal without reaching the hanging-wall. Both walls are well defined in the shaft above. The ore assays very high in silver, and also carries large quantities of copper."

The same paper observes: "Private parties have erected a new smelter at their works on the Mimbres, below Georgetown. Twenty-five tons of first-class ore had accumulated when the smelter was completed, and the returns of the first seven tons were something over 800 ounces per ton."

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending December 16th, 1879:

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
222,615	Device for Packing Engines	David Webbert (a)	Kearney, Neb.
222,652	Electrical-Contact Telephone	Emile Berliner	Boston, Mass.
222,670	Rock-Crusher	Ezra Coleman	San Francisco, Cal.
222,675	Hoisting-Machine	Thomas N. Davey	Carthage, Mo.
222,676	Portable-Furnace	Antoine B. Dembrun	New Orleans, La.
222,735	Water-Front for Horizontal Steam-Boilers	Garrie H. Rheutan	Hartford, Conn.

(a) Assignor of one half of his right to Harvey Burritt.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Culverts, Drains, and Retaining Walls; Office of the Board of City Commissioners, Cincinnati, O.	Dec. 27, 1879.
Graving-Dock at Esquimalt Harbor, at Victoria, British Columbia; George A. Walkem, Chief Commissioner of Land and Works, Victoria, British Columbia.	" 27, "
Cross-ties—300,000—red spruce or yellow pine, 7 feet long, 7-inch face, and 7 inches thick; John Evans, Denver, Colo.	" 27, "
Grading and bridging 93 miles on the Denver & South Park and Pacific Railroad; John Evans, Denver, Colo.	" 27, "
Locomotive Engines—6—of "Mogul" Pattern, Cylinders, 18 in. × 26 in.; Mr. Herbert Waller, Mechanical Superintendent of the Grand Trunk Railroad, Montreal.	" 27, "
Court-House at Shelbyville, Ill.; Wm. M. Wright and others, Building Committee, Shelbyville, Ill.	" 29, "
Common Tent Pins—50,000, White or Red Oak or Hickory, Osage Orange or Bois d'Arc; for further information, apply to James A. Ekin, Deputy Quarter-Master General, Jeffersonville, Ind.	" 29, "
Arching for Tunnels Nos. 8, 16, 18, 25, and 26, on the Cincinnati Southern Railroad; C. Bouscaren, C. and P. Engineer, No. 82 W. Third street, Cincinnati, O.	" 31, "
Street Improvements for Constructing and Repairing all the Brick, Plank, and Flagstone Sidewalks; Board of City Commissioners, Cincinnati, O.	Jan. 5, 1880.
Iron and Brass Work for Lock-Gates of St. Mary's Falls Canal; indorsed, "Proposals for Iron and Brass Work for Lock-Gates of St. Mary's Falls Canal," U. S. E. Office, No. 26 Washington avenue, Detroit, Mich.	" 5, "
Joiners' Work, Marble Work, etc., for United States Custom House, at Chicago, Ill.; office of the Supervising Architect, Treasury Department, Washington, D. C.	" 5, "
Pipes for Water Supply, etc., Kurrachee (Scinde, India); plans at F. P. Baker & Co., 4 Bond Court, Walbrook, E. C.; tenders to the President of the Municipality, Kurrochee, Scinde, India.	" 7, "
Alterations and Additions to State House; C. E. Kemble and A. Peebles, Joint Architects, Charlestown, Kanawha Co., W. Va.	March 1, "
Tenders for Construction of a Railway in the Island of Ceylon, 41½ miles; tenders, sealed and indorsed, "Tender for Nanu-oya RR.;" Penrose G. Julian, Crown Agent for the Colonies, Downing street, London, Eng.	" 3 "

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, Dec. 26.

The business of the week has been small and prices weak. The reduction of the amount of business was caused by a total suspension of business yesterday, and nearly so on Wednesday, as is usually the case the day before Christmas, while to-day many were slow to resume business, and not much in the humor for it when they did. The cause of the lower prices was both the absence of buyers and the great decline in mining stocks in San Francisco, which throws a cloud over all mining investments, although having no connection whatever with the stocks usually dealt in in this market. The mines represented in this market, which command the attention of careful business men, are legitimate operations as much as an iron mine, and are dependent upon able, honest, and economical management for success, and even when so managed only offer fair returns for such risk as accompanies any class of mining. The favorite stocks in San Francisco represent mines many of which have practically no ore proven, and the public gambles for big stakes or nothing; and as thousands are ruined by not getting any thing where they had nothing more than a hope of it, mining, as a legitimate industry, is thrown into discredit.

The Bodie stocks have been very quiet, and, without exception, weak. The sales of Bodie amount to but 310 shares at 9@8½. The transactions in Standard amount to but 607 shares at 28@28½. The sales of Bechtel aggregate 625 shares at $1.30@$1.20. Bulwer has been steady at 9@9¼, with sales of 449 shares. Consolidated Pacific shows sales of 500 shares at $3.75@$4.25. Goodshaw has been both weak and quiet, the sales amounting to but 1900 shares at 13@7c. May Belle records 300 shares at 15@10c. North Standard only shows sales of 100 shares at $1.90. Probably, the activity, strength, etc., of this mine has gone off to enjoy Christmas on his profits of, perhaps, $1.75 to $1.90 per share, made on such stock as has been sold. The business in Tioga aggregates 750 shares at $2.15@$1.85.

The dealing in the Comstock shares embraces a small list of mines, and unusually small transactions and low prices. California sold at $4 on Saturday, with dividend on, and on Monday at $3.55, ex dividend, since when it sold down to $2.75, recovering to $3.25 on Wednesday, and selling at $2.25@$3.50 to-day. The sales for the week amount to 1800 shares. The course of Consolidated Virginia has been very similar, although on a slightly higher range. The sales aggregate 3815 shares at $4.10@$3.10. Sierra Nevada records sales of 55 shares at $20¼@$21. Consolidated Imperial has been fairly active, and inclined to improve to-day. The sales amount to 1960 shares at 30@43c. Kossuth records 100 shares at 16c., and Leviathan 100 shares at 26c.

The Tuscarora stocks have been very quiet and weak. The sales of Belle Isle amount to 2425 shares at $1.50@$1.35. Grand Prize only records 100 shares at $1.25. Independence has been quiet, the sales amounting to 575 shares at 95@80c. The sales of Navajo amount to 450 shares at 30@25c. and of Tuscarora to 700 shares at 21c.

The miscellaneous San Francisco list shows dealings as follows: Eureka, 160 shares at $16@$17; Caledonia (B. H.), 1050 shares at $2.50@$2.80; Tip Top, 1400 shares at $2@$1.70.

The dealings in the stocks on the New York Stock Exchange and Mining Exchange, not previously mentioned, have been as follows: Caribou was weak early in the week, but stronger to-day. The sales aggregate 895 shares at $4⅞@$5¼. The only transaction in Central Arizona was 100 shares at $21½ on Saturday. Excelsior only records 50 shares at $24½. Findley has ranged between 68 and 71c., with sales of 4000 shares. Great Eastern has been fairly active, the sales amounting to 11,000 shares at 28@31c. Green Mountain has been fairly active but weak. The sales amount to 3600 shares at $2.25@$2. The business in Homestake amounts to but 100 shares at $39. Hukill shows a fair business, with an inclination to better prices at the close. The sales amount to 6400 shares at $3.75@$4. The following is a copy of a letter received at the company's office to-day:

HUKILL OFFICE, COLO., Dec. 20.

J. L. Brownell, Esq., President:

DEAR SIR: I have to report the mine continuing to look exceedingly well. The second level is opened 94 feet laterally in continuous good ore, with both faces looking well. The north drift is much the richer, having fully three feet of rich solid mineral. The south face has mineral all through it, but does not produce the amount of first-class ore that the north does. We have done nothing in the first level since my last; on the 18th, the shaft, having attained the proper depth (221 feet), we commenced our cross-cut to the ore. It will take until the 4th or 5th of January to reach it, as there is 42 feet to run. There is not the slightest doubt but we will find a good body of ore, as every thing on the second level indicates a permanent vein, which apparently gets more solid as depth is attained. Since I last wrote you, we have shipped 6¾ tons of ore from the first level, which averaged (assay value) $90.50 per ton (this was merely mined and shipped as a test). From the second level, 48¼ tons was shipped, which averaged $99.15 per ton, showing an increase in valuation of the second level over the first of $9.00 per ton. The difference is not so great as I expected, as the first level goes considerably higher than I had estimated. If we get a good body of ore on the third level, we will then have a shoot developed 190 feet deep, by 100 feet long, on first and second stations (with ore in all the faces), and known to extend 600 feet on the third from developments made on the Hukill fifth level. As soon as we reach the ore on the third level, I will notify you of its width and value.

Yours truly, F. F. OSBISTON, Supt.

La Plata records 525 shares at $4.95@$5.25. Leadville shows a moderate business and good prices. The sales amount to 8760 shares at $4.20@$4.65. Little Pittsburg has been both quiet and weak. The sales amount to 670 shares at $30¼@$29. Moose has been quiet and weak, with sales of 3750 shares at $3.05@$2.95. New York & Colorado only records 100 shares at $2.25. The sales of Ontario only amount to 20 shares at $39½@39⅝. Plumas sold at $2.35 on Monday and $2.50 on Wednesday, the total transactions for the week being 500 shares. The Mariposa stocks, both Common and Preferred, show sales of 100 shares each at $3. On Monday there was a business of 700 shares in Quicksilver Common, at $19½@$20¾. Rappahannock shows a business of 22,300 shares at 35@37c. Shamrock has ranged between $1.30 and $1.45, with sales of 5750 shares. South Hite has been a little irregular, and fairly active. The sales aggregate 13,950 shares at $2.95@$3.30. Sutro records sales of 8605 shares at $3⅝@$3¾.

In the "fancies," the dealings have been as follows: Gold Placer came forward to-day as a favorite. The sales in this stock for the week aggregate 35,500 shares at 24@30c. The sales of American Flag have amounted to 900 shares at 54@50c.; Buckeye, 25,800 at 49@56c.; Dahlonega, 7700 at 18@19c.; Granville, 18,400 at 41@46c.; Lacrosse, 12,900 at 43@39c.; Lucerne, 11,500 at 9@17c.

The Leadville Mining Company has declared dividend No. 7, of 15c. per share, payable January 7th. The transfer-books close January 5th. Previous dividends have been 10c. each. The annual meeting of this company will take place January 6th.

The Excelsior Water and Mining Company has declared dividend No. 22, of 25c. per share, payable January 5th. The transfer-books will be closed on the 31st inst.

The following is a list of monthly dividends announced by mining companies represented in this market up to the present time this month:

Ontario	$50,000
Leadville	30,000
Homestake	30,000
Little Pittsburg	100,000
Bodie	50,000
Chrysolite	200,000
Green Mountain	6,500
La Plata	15,000
Breece	10,000
Excelsior	25,000
Standard	50,000
Total	$566,500

REVIEW OF THE SAN FRANCISCO MARKET.

Our quotations of the San Francisco market extend up to the opening of the Board on the 24th inst., since when we are without prices, the Brokers having adjourned over until Monday next. The recorded prices, with one or two isolated exceptions, still evince a downward tendency. The best bear argument on the position of Comstock is furnished by the list of assessments published by a Pacific Coast contemporary, which have been levied during the year, the total being summarized as follows:

	No.	Amount.
Nevada	138	$11,404,400
California	118	2,692,100
Arizona Territory	14	328,200
Dakota Territory	4	360,000
Idaho Territory	2	20,000
Utah Territory	1	8,000
Wyoming Territory	1	15,000
Total	278	$14,827,700

It will be observed that Nevada mines in the above statement are credited with about 80 per cent of the whole amount, namely, $11,404,400. Of course, nearly all of this has gone into Comstock developments, and the demands for the future seem to require even more than in the past. Certainly, the cost of the work of development increases largely with depth, and many of the deepest mines are still apparently satisfied with "favorable indications." Thus far, our Eastern-managed mines have returned to their stockholders millions of dollars in dividends, in many instances returning in this way the original purchase price of the stock, without being called upon for a single dollar in the way of an assessment. The money called by some single mines upon the Comstock, during the past year—the Sierra Nevada, Union Consolidated, Mexican, or Belcher, for example (the drain upon the stockholders in these four companies aggregating $2,420,000)—would accomplish great results, if judiciously expended in some of our newly-discovered rich mines in a number of places throughout the West, giving absolute certainty of profitable returns. The following comes over the wires:

SAN FRANCISCO, Dec. 22.—The *Post* to-day makes a positive assertion in its editorial columns that J. C. Flood is about to retire from stock operations. The report is corroborated from various sources, though no statement from Flood to that effect has yet been made public.

"The appraisers of the estate of the late William S

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS. Dec. 19.	Dec. 20.	Dec. 22.	Dec. 23.	Dec. 24.	Dec. 25.	Opening. Dec. 26.
Alpha	7¾	7¾	6	7½	5¼	....	.....
Alta	2½	2½	1⅞	2	....	....	.....
Argenta	1	1	15-16	1	....	....	.....
Bechtel	1⅜	1⅜	1¼	....	....	....	.....
Belcher	1⅞	1⅞	1½	1¾	2½	....	.....
Belle Isle	1½	....	1⅜	1⅜	....	....	.....
Belvidere	19-32	....	¾	½	....	....	.....
Benton	....	....	....	....	....	....	.....
Best & Bel.	8½	9	7	7⅝	9½	....	.....
BlackHawk	½	....	½	13-32	13-32	....	.....
Bodie	8¾	8½	8½	8⅞	....	....	.....
Booker	....	....	....	....	....	....	.....
Boston Con.	1¼	1¼	1¼	1¼	....	....	.....
Bullion	3½	3½	2⅝	3	....	....	.....
Bulwer	9½	....	9	....	....	....	.....
Caledonia	29-32	15-16	11-16	13-16	....	....	.....
Cal. B. H.	2¾	3¼	2¾	2¾	....	....	.....
California	3⅞	3⅞	2½	3⅞	3.10	....	.....
Chollar	5⅛	5½	4⅞	4½	5¼	....	.....
Confidence	....	....	....	....	....	....	.....
Con. Imp	11-32	11-32	5-16	5-16	13-32	....	.....
Con. Pacific	4	4	4	4	....	....	.....
Con. Va	4	3¾	3¼	3⅞	3.10	....	.....
Crown P'int	1¾	1¾	1½	1¾	1.90	....	.....
Dudley	¼	13-32	½	7-16	....	....	....
Endowm'nt	2⅛	....	....	....	....	....	....
Eureka Con	16½	16	17	16	....	....	.....
Exchequer	2½	2½	1¾	2¼	2	....	.....
Goodshaw	1-16	....	....	....	....	....	.....
Gould & Cur	4¼	4¼	3⅝	3¼	4½	....	.....
Grand Prize	½	13-32	11-32	13-32	....	....	.....
Hale & Nor.	5⅝	6¼	5	5	5½	....	.....
Hamburg	....	....	....	....	....	....	.....
Homestake	....	....	....	....	....	....	.....
Hussey	....	....	....	....	....	....	.....
Indep'd'nce	¾	¾	¾	....	....	....	.....
Jackson	....	....	....	3½	....	....	.....
Julia Con.	½	9-32	1¼	1¼	1.40	....	.....
Justice	1	1	19-32	21-32	.85	....	.....
Kentuck	....	....	....	....	....	....	.....
Kossuth	....	....	....	....	....	....	.....
Lady Wash	13-32	....	5-16	13-32	....	....	.....
Leeds	13-32	....	13-32	....	....	....	.....
Leopard	....	3-16	1-16	3-32	....	....	.....
Leviathan	3-16	¼	½	¼	....	....	.....
Mammoth	2	2¼	2¼	2¼	....	....	.....
Manhattan	....	1¾	1½	....	....	....	.....
Maybelle	....	....	....	....	....	....	.....
Mar. White	9-16	9-16	½	19-32	....	....	.....
McClinton	13-32	....	....	11-32	....	....	.....
MeadowVal	....	....	....	....	....	....	.....
Mexican	16½	15½	13¼	15⅝	17⅛	....	.....
Mono	3	3	3⅛	....	....	....	.....
Navajo	3-16	3-16	¼	3-16	....	....	.....
North. Belle	....	....	6¼	6¼	....	....	.....
N. Belle I'e	....	....	....	....	....	....	.....
N. Bonanza	....	....	11-32	3-32	....	....	.....
N. Standard	....	....	....	....	....	....	.....
Ophir	17⅛	17⅜	14¾	16¾	16¾	....	.....
Orig. K'ys'e	....	....	....	....	....	....	.....
Overman	3¾	3¾	2	3	....	....	.....
P. Sheridan	....	....	....	....	....	....	.....
Potosi	2⅞	2¾	2⅛	2⅝	2½	....	.....
Ray. & Ely	¾	29-32	29-32	¾	....	....	.....
R. de Monte	....	....	1½	....	....	....	.....
Richer	....	....	....	....	....	....	.....
Savage	4¼	4½	3¾	4	4¾	....	.....
Scorpion	....	....	....	....	....	....	.....
Seg. Belcher	....	....	....	....	12	....	.....
Sierra Nev.	20½	20¾	14⅞	19⅝	18½	....	.....
Silver Hill	19-32	13-16	11-32	21-32	.80	....	.....
Silver King	5	4½	6	5¼	....	....	.....
So. Bulwer	½	½	13-32	....	....	....	.....
Standard	....	....	....	....	....	....	.....
Summit	....	....	....	....	....	....	.....
Syndicate	*1¼	2¼	*20-33	*20-32	....	....	.....
Tioga	1¾	1¾	1½	1¾	....	....	.....
Tip Top	....	2	1¾	....	....	....	.....
Trojan	....	....	....	....	....	....	.....
Tuscarora	....	....	....	....	....	....	.....
Union Con.	37¼	37¼	33¾	37	43¼	....	.....
Utah	....	....	....	....	7½	....	.....
Wales	4¼	4	4¼	4½	....	....	.....
Ward	....	....	....	....	....	....	.....
WashoeCon	....	....	....	....	....	....	.....
Yel. Jacket	8	8¼	6½	6½	9⅝	....	.....

* New stock.

GENERAL MINING STOCKS.

Dividend Paying Mines.

Name and Location of Company.		Feet on Vein.	Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total levied to date.	Assessments. Date and amount per share of last.	Dividends. Total paid to date.	Dividends. Last Dividend.	Highest and Lowest Prices per Share at which Sales were Made. Dec 20. H.	Dec 20. L.	Dec. 22. H.	Dec. 22. L.	Dec. 23. H.	Dec. 23. L.	Dec. 24. H.	Dec. 24. L.	Dec. 25. H.	Dec. 25. L.	Dec. 26. H.	Dec. 26. L.	Sales.
Argenta	Nev.	1,500	10,000,000	100,000	100	75,000	Jan. 1879	20,000	July 1879 20													
Belle Isle	Nev.	1,500	10,000,000	100,000	100			200,000	Oct. 1879 75	1.50	1.40	1.40	1.35	1.50	1.40	1.45	1.35			1.50	1.35	2,425
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,714,800	Oct. 1879 0 10	15,397,200	Apr. 1876 1 00													
Bobtail, G.	Col.	2,500	1,136,630	227,326	5	*		125,030	Sept. 1879 15													
Bobtail Tunnel, G.	Col.		100,000	20,000	5	52,000	July 1873 0 30	56,000	Dec. 1878 40													
Bodie, G.	Cal.		10,000,000	100,000	100	75,000	May. 1879 1 00	1,150,000	Jan. 1880 50	9	8¾			8¼	8	8¼	8			8¼		310
Briggs Con., G.	Col.		2,000,000	200,000	10			8,000	Dec. 1879 0 04													
California, G. S.	Nev.	600	54,000,000	540,000	100			31,320,000	Dec. 1879 50	4		+3.55		3	2.75	3.25	3.10			3.50	3.35	1,800
Caribou Con.	Col.	1,400	1,000,000	100,000	10			40,000	Sept. 1879 1	5	4½			5						5¼		895
Central Arizona			10,000,000	100,000	100					21½												100
Chollar, G. S.	Nev.	700	11,100,000	112,000	100	1,862,000	Nov. 1879 0 50	3,080,000	Feb. 1872 1 00													
Chrysolite, S.	Col.		10,000,000	200,000	50			400,000	Dec. 1879 1 00													
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June 1873 3 00	12,390,000	Dec. 1879 50	4.10	4.05	4.10		3.25	3.10	3.50	3.25			3.60	3.35	3,815
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr. 1878 0 50	78,000	May. 1865 8½													
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	2,173,370	Aug. 1879 1 00	11,588,000	Jan. 1875 2 00													
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	May. 1878 1 00	4,050,000	Dec. 1879 50	16		16		17	16½							160
Excelsior W'ks & M. Co	Cal.	525 acres	10,000,000	100,000	100				Dec. 1879 25					24½								50
Findley, G.	Geo.		200,000	200,000	1			8,000	Nov. 1879 1c	70				70						71	68	4,000
Gould & Curry, G. S.	Nev.	612	10,800,000	108,000	1	3,044,000	July. 1879 1 00	3,826,800	Oct. 1879 10 00													
Grand Prize	Nev.	1,500	10,000,000	100,000	100	220,000	Nov. 1879 0 75	400,000	Feb. 1878 1 00					1.25								100
Great Eastern		1,200	300,000	300,000	1			10,000	July. 1879 01	28				28		29	28			31	28	11,000
Green Mountain G. M. C.	Cal.	4,350	1,250,000	125,000	10			31,250	Nov. 1879 5	2.25		2.25	2.20	2.20	2.05	2.10	2			2		3,600
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	3,004,000	Sept. 1879 1 00	1,598,000	Apr. 1871 5 00													
Homestake, G.	Dak		10,000,000	100,000	100	200,000	Apr. 1878 1 00	360,000	Dec. 1879 30	39												100
Horn, S.	Uth.		10,000,000	400,000	25			100,000	Nov. 1879 25													
Hukill, G. S.	Col.	3,288	1,000,000	200,000	5	*			Dec. 1878	3.95	3.75	3.85	3.75	3.95	3.75	3.95	3.75			4	3.80	6,400
Independence	Nev.	1,500	10,000,000	100,000	100	75,000	Nov. 1878 0 25	225,000	Sept. 1879 25	95				83	80							575
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug. 1878 1 00	1,252,000	Mar. 1870 5 00													
K. K. Cons.	Nev.	1,200		50,000		500,000	Oct. 1879 2 00	62,500	Sept 1873 0 25													
La Plata	Colo													5						5.25	4.95	525
Leadville	Col.		2,000,000	200,000	10	*		120,000	Nov. 1879 10	4.30	4.20	4.45	4.20	4.55	4.45	4.60	4.50			4.65	4.50	8,760
Leeds	Uth.	3,000	6,000,000	60,000	100			78,000	Oct. 1878 0 15													
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	342,500	Sept. 1879 50	162,500	Dec. 1876 0 50													
Little Pittsburg	Col.		20,000,000	200,000	100			1,150,000	Nov. 1879 50	29¾		30¼		30½	29¾	29¼	29					670
Manhattan	Nev.	129,810		100,000			July. 1879 1 00	400,000	Feb. 1877 1 00													
Martin White	Nev.	22,000	10,000,000	100,000	100	150,000	Jan. 1879 1 50	90,000	July. 1879 0 30													
Merrimac, S.	Mas.	1,500	500,000	100,000	5	650,000	June	120,000	Mar.													
Modoc	Cal.	4,000		100,000		*	Feb. 1879 0 50	50,000	Dec. 1876 0 50													
Moose	Col.	39,000	2,000,000	200,000	10	450,000		550,000	Mar. 1878 0 25	3.05	2.95	3	2.95	2.95		2.95						3,750
N. Y. & Colorado, G.	Col.		1,000,000	50,000	20	*		25,000	July. 1879 0 10	2.25												100
Northern Belle, S.	Nev.	1,600	5,000,000	50,000	100	*		1,500,000	Nov. 1877 1 00													
Ontario	Uth.	3,000	10,000,000	100,000	100			2,500,000	Dec. 1879 50	30¼				30⅞								20
Ophir, G. S.	Nev.	675	10,080,000	100,800	100		Nov. 1878 1 00	1,394,400	Mar. 1864 4 00													
Potosi, G. S.	Nev	700	11,000,000	112,000	100	2,594,200	Nov. 1879 0 50															
Plumas	Cal.		1,000,000	100,000	10			151,000	July 1879 8			2.35				2.50						500
Raymond & Ely, G. S.	Nev.	5,000	12,000,000	120,000	100		Sept. 1879 1 00	3,075,000	Sept. 1873 3 00													
Richmond, S.	Nev.		1,350,000	5,400	25																	
Rye Patch	Nev.	1,000		30,000		660,000	Dec. 1878 1 00	105,000	Dec. 1877 0 25													
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10	157,500		250,000														
Savage, G. S.	Nev.	800	11,200,000	112,000	100		Nov. 1879 1 00	4,460,000	June 1879 3 00													
Seaton, G. S.	Col.	1,700	500,000	50,000	10	4,684,000			May 1877 0 10													
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	*	Oct. 1879 2 00	102,000	Jan. 1871 1 00							20¼				21½	21	55
Silver King	Ariz	1,500	10,000,000	100,000	100	3,450,000		450,000	Nov. 1878 0 50													
Standard	Cal.		10,000,000	100,000	100		July 1878 1 00	1,450,000	Dec. 1879 0 50	28½	28	28½		28⅝						28⅛	28	607
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100		Oct. 1879 1 00	2,184,000	Aug. 1871 2 50													
						3,278,000																

Non-Dividend Mines.

Alpha, G. S.	Nev.	306	3,000,000	30,000	100	300,000	Nov. 1879 1 00															
Alta	Nev.	600		108,000		1,101,000	Feb. 1879 1 00															
Am. Flag, G.	Col	5,300	300,000	60,000	10	*				58c						54c	50c					900
Andes	Nev.	2,000	500 000	100,000		380,000	May. 1879 0 25															
Baltimore Cons.	Nev.	1,050		84,000		1,015,000	Apr. 1878 0 50															
Benton	Nev.	600		108,000		91,800	Sept 1879 0 50															
Bechtel	Cal.			69,000		96,000	Oct. 1879 0 15					1.30				1.30	1.20			1.30	1.20	625
Belvidere	Cal.	1,500		60,000		33,000	Feb. 1879 0 20															
Bertha & Edith G.	Vir.	645 acs.		500,000	1	*																
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	840,900	Nov. 1879 1 00															
Buckeye	Col.		2,000,000	400,000	5	*				56c	49c	54c	51c	52c	51c	56c	52c			53c		25,800
Bullion, G. S.	Nev.	943⅛	10,000,000	100,000	100	3,152,000	Nov. 1879 0 50															
Bulwer	Cal.		10,000,000	100,000	100		Dec. 1877 50			9¼		9		9¼		9¼	9			9¼	9⅛	449
Cal., B. H.	Dak.		10,000,000	100,000	100	150,000	Oct. 1879 0 60			2.50		2.65	2.60	2.80	2.75	2.55						1,050
Caledonia	Dak	2,188	10,000,000	100,000	100	1,740,900	1879 0 50															
Casmer	Co.		500,000	250,000	2	*																
Challenge	Nev.	90		50,000		10,000	Nov. 1878 0 20															
Cleveland, G.	Col.	3,715	250,000	25,000	10	*																
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	50	1,075,009	Sept. 1879 0 20			38c	33c	32c	31c	30c		35c				43c	38c	1,960
Con. Pacific	Cal.	1,400	600,000	60,000	100	*						3.90		4	3.75					4.25		500
Dahlonega	Ga.		250,000	250,000	1	*				19c	18c	19c	18c	19c	18c					19c		7,700
Day	Nev.	1,500	10,000,000	100,000	100	70,000	Feb. 1879 0 15															
Dayton	Nev.	1,600	10,000,000	100,000	100	750,000	Apr. 1878 0 25															
De Frees	Ariz	1,500	10,000,000	100,000	100	140,000	May. 1879 15															
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	480,000	July. 1879 1 50															
Gold Placer, G.	Col.		5,000,000	200,000	25																	
Goodshaw	Cal.		10,000,000	100,000	100	50,000	Nov. 1879 0 25			13c	10c	25c	22c	25c	24c	25c	24c			30c	25c	35,500
Granville, G.	N. C.	1,231 acs.	300,000	300,000	1					42c	41c	45c	42c	46c	43c	7c						1,900
Hussey	Nev.	4,500	10,000,000	100,000	100	125,000	Aug. 1879 0 15									44c	43c			45c	43c	18,400
Julia, G. S.	Nev.	3,000	11,000,000	110,000	100	872,500	July. 1879 1 25															
Justice, G. S.	Nev.	2,000	10,500,000	105,000	100	3,026,500	Nov. 1879 0 50															
King's Mountain, G.	N. C.		1,200,000	120,000	10																	
Kossuth	Nev.	2,700	10,700,000	108,000	100	421,200	Aug. 1877 0 15			16c												100
Lacrosse	Col.	3,900	1,000,000	100,000	10	*				43c	41c	40c		41c	36c	39c				41c	39c	12,900
Leviathan	Nev.	2,000	10,000,000	100,000	10	290,000	Aug. 1879 25			26c												10
Lucerne	Col.	4,200	5,000,000	500,000		*				17c	16c	17c		14c	9c	17c	13c			17c	16c	11,500
Mariposa preferred	Cal.	44,387	5,000,000	50,000	10	1,425,000	June 1877 1 00													3		100
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June 1878 1 00			3												100
May Belle		1,500	10,000,000	100,000	100	21,000	Sept 1879 0 10							15c		13c				10c		900
McClinton	Cal.	1,000		60,000		75,000	Oct. 1879 0 25															
McCracken	Ariz	4,500	10,000,000	100,000	100	100,000	Sept. 1879 0 25															
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	474,800	Nov. 1879 2 00															
Mono	Cal.	750	5,000,000	50,000	100	125,000	Sept. 1879 1 00															
Navajo	Nev.	500	10,000,000	100,000	100	145,000	Feb. 1879 0 20			30c				25c						25c		450
New York	Nev.	1,000	10,000,000	100,000	100	860,000	Oct. 1879 0 30															
Nth. Standard	Cal.											1.90										100
Orig. Keystone	Nev.	1,500	10,000,000	100,000	100	125,000	July 1879 0 25															
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,481,080	Nov. 1879 2 00															
Quicksilver preferred	Cal.	8,500	4,291,300	42,913	100	*																
" common	Cal.	acres.	5,708,700	57,087	100	*																
Rappahannock, G.	Va.	345 acres	250,000	250,000	1	*				38c	35c	37c	35c	37c	35c	37c	35c			37c	36c	22,300
Seg. Belcher, G. S.	Nev.	160	640,000	6,400	10	244,800	Oct. 1876 3 00															
Shamrock	Colo		10,000,000	100,000	100					1.35	1.30	1.45	1.35	1.55	1.40	1.45	1.40			1.40		5,750
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	10	1,458,000	Oct. 1879 0 50															
Silver Prize	Nev.	1,500	10,000,000	100,000	100	65,000	Mar 1879 0 25															
South Rite G. M. Co.	Cal.		2,500,000	100,000	25					3.25	3	3.10	2.95	3.10	3	3.30	3			3.30	3.10	13,950
Stormont, S.	Uth.		1,500,000	150,000	10																	
Sutro Tunnel	Nev.		20,000,000	2,000,000			1876 0 50			3⅞	3¾	3⅞	3¾	3¾	3¾	3⅞				3¾	3⅜	8,605
Tiptop	Ariz		10,000,000	100,000	100	120,000	Apr. 1878 0 25			2	1.90			1.90		1.80	1.70					1,400
Tioga	Cal.	1,500	10,000,000	100,000	100	130,000	Nov. 1879 0 20			2.15		2.10		2	1.85					1.85		750
Trio	Col.	1,250	150,000	150,000	1																	
Trojan	Nev.	1,500	10,000,000	100,000	100	265,000	Mar. 1879 0 25															
Tuscarora	Nev.		10,000,000	100,000	100	55,000	Sept. 1879 0 10					21c				21c						700
Union Cons. G. S.	Nev.		10,000,000	100,000	100	860,000	July. 1879 2 00															
Utah	Nev.	1,000	2,000,000	20,000	100	1,100,000	Oct. 1879 2 00															
Ward	Nev.	1,200	11,000,000	110,000	100	99,000	Apr. 1879 0 30															
Wells Fargo	Nev	1,500	10,000,000	108,000	100	253,800	Dec. 1879 0 10															

Total Assessments levied to date..... $59,611,760

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable. + Ex-dividend.

Total Dividends paid to date.....

Total Shares sold during the week.....

O'Brien, of San Francisco, have made an inventory, showing its value to be $9,655,459.77. One item is 23,750 shares of Nevada Bank stock, valued at $140 per share. He also owned $2,500,000 in United States 4½ per cent bonds."

In connection with the above, we note that Mr. Mackey, of bonanza notoriety, is now in Leadville, accompanied by an expert; also, that Mr. J. M. Taylor, another expert, has started East in the interest of California operators, located here.

It is thought that, as matters are now shaping themselves, quite a little village will spring up in the vicinity of the Yellow Jacket shaft. The Belcher, Crown Point, Imperial, Bullion, Exchequer, Confidence, and other leading mines will, no doubt, soon be worked through the shaft; therefore, it will be much more convenient for the miners to dwell near that point.

As an evidence of the improper uses to which the assessment system has grown, we cite the opinion of a "Comstock authority," the Gold Hill *News* of the 18th instant, which says:

"To-night, the Savage stops pumping, and will allow the water to rise in the mine. The mine will be shut down till the Chollar-Norcross-Savage drift, 2400 level, gets under the Savage winze, when work will be resumed. This is done as a matter of economy. At present, it takes $300 per day to furnish the wood alone to run the pumps.

"Since that body of water was struck in the Savage, there have been expended, in round numbers, for pumping, $2,500,000. Now, of course, that is all of no account; so much money goes out into steam and smoke, and once more we are compelled to return to the appellation recently discarded, 'The Water Mines.'"

Addenda has been sparingly dealt in on the San Francisco market. Recent sales have been made at 45@50c. per share. The recent strike, so industriously reported, in this mine, is not reflected in the quotations, they being now at the lowest price we have recorded for some time past.

Recent letters from the Argenta mine are very favorable. It is anticipated to commence crushing ore on the first of January. The various workings are looking well, and nearly all of them are stated to be in good ore. The stock opened on the 24th instant at $1 per share, the same price as prevailing for some time past.

Belcher shows a slight improvement from the remarkably low prices recently attained, opening on the 23d at $2.50, showing an advance of ⅝. Work has been resumed on the 3000 and 2760 levels. No change is noted. In the Eureka Consolidated, the water still continues to come in on the 12th level. This stock opened on the 23d at $16, the same as recorded in our last.

On the 23d instant, Belle Isle was quoted at $1⅝ per share. Favorable progress is being made throughout the mine, and it is stated as looking very well. With the dividend paid by this company on the 6th inst., the record stands as follows:

	Per share.	Total.
July 15th	25c.	$25,000
August 5th	50	50,000
September 5th	50	50,000
October 6th	75	75,000
November 5th	75	75,000
December 5th	25	25,000
Total	300	$300,000

In the Bulwer mine, active work is going forward in every direction. This stock is certainly an exception to the average San Francisco market. The Bulwer-Standard mill is reported approaching completion. We are in receipt of telegraphic advices to-day stating that it will be ready to commence crushing by the middle of January proximo.

Lady Washington comes forward with an assessment of 20 cents per share.

Mono had levied an assessment of 50 cents per share. On the 22d this stock closed at $3⅛, against $3 in our last. This mine has been thoroughly drained, and sinking of the shaft is resumed in the Real del Monte mine. The pumps hold the water at a point 15 feet below the 500 station. This stock closed December 22d at $1⅛ per share, which is the same as recorded in our last. This mine is located in Esmeralda County, Nev., and consists of what is considered a promising group of mines.

Ophir opened on the 24th instant at $16¾ per share, a decline of $3¼ for the week. The pumps are running from the 2000 level of this mine to the Sutro Tunnel level, from which they are to be extended down to the 2300 level, and will then be continued to the 2500 level. The dividend just declared by this mine is the first since 1865. In our mining news, we give some very interesting extracts from the superintendent's report submitted at its recent annual meeting in San Francisco, showing the operations of the company during the past year.

BOSTON MINING STOCKS.

NAME OF COMPANY.		Dec. 19.		Dec. 20.		Dec. 22.		Dec. 23.		Dec. 24.		Dec. 25.		SALES.
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	Shares.
Allouez, c	Mich.													
Atlantic, c	Mich.									12½				100
Blue Hill, c	Me.													
Calumet & Hecla, c	Mich.	272		272		273		273		274				48
Central, c	Mich.			39½										25
Copper Falls, c	Mich.													
Copper Harbor, c	Mich.													
Dana, c	Mich.	55		60		55								225
Douglas, c	Me.													
Duncan, s	Ont.	4												50
Eagle River, c	Mich.													
Franklin, c	Mich.													
Hanover, c	Mich.													
Humboldt, c	Mich.													
Hungarian, c	Mich.													
International, s	Ont.	50												50
Manhattan, c	Mich.													
Mesnard, c	Mich.													
Minnesota, c	Mich.													
National, c	Mich.	4⅝	4⅛	4¼										300
Orford						8½	8	8½						1,400
Osceola, c	Mich.			32½		32		33						275
Pewabic, c	Mich.	33	32	33				33						125
Phœnix, c	Mich.													
Pontiac, c	Mich.													
Ridge, c	Mich.	6⅝	6¼	6⅜	6									425
Rockland, c	Mich.													
Quincy, c	Mich.			26		26	25¾	26						550
Silver Islet, s	Mich.	23				22								210
Star, c	Mich.					2		1⅞						60
Sullivan, s	Me.							12						75
Superior, c	Mich.													
Sutro Tunnel	Nev.							3⅞						100
Washington, c	Mich.													
Winthrop, c	Mich.													

c. Copper. s. Silver.

The *Commercial Herald* of the 18th inst. says of the market:

"We note a continued depressed condition of the mining stock market, a still greater recession having taken place during the past week. The transactions in the aggregate have also been less, and a general apathy prevails in every department of the business. Recent changes of management, and other movements on the Comstock lode, have not added any thing favorable to the market, and they have apparently not been made with that view, for the present, at least. Under this state of the market, every outsider is disposed to sell—the greater the depression, the greater the disposition to get rid of the stock—but as soon as it advances, there is an equally great desire to buy, and to hold, for improved rates."

Mining Assessments Delinquent during December.—The *Stock Report* publishes the following list of assessments delinquent at the respective offices this month, so far as made public:

Name.	Per Share.	Amount.	Del. Dec.
Alpha Consolidated	$1.00	$30,000	30
Aurora Tunnel	10	6,000	15
Belcher	1.00	104,000	23
Belmont	25	12,500	8
Best & Belcher	1.00	100,800	29
Black Hawk	25	12,500	18
Bullion	50	50,000	3
Caledonia	50	50,000	16
Chollar	50	56,000	9
Crown Point	1.00	100,000	22
Crescent Gold	5	5,000	15
Curtis Consolidated	5	5,000	24
Defiance	30	15,000	17
Dixon Bar	10	3,000	16
Dudley	25	16,000	20
Florida Hill	10	10,000	5
Flowery	25	25,000	19
General Thomas	25	12,500	8
Giant & Old Abe	50	50,000	31
Gold Lead	20	20,000	29
Grand Prize	75	75,000	30
Hillside	50	50,000	24
Independence	25	25,000	18
Indian Queen	10	6,000	20
Julia Consolidated	1.00	110,000	24
Jupiter	35	22,400	15
Mexican	2.00	201,600	11
McCrackin	25	25,000	24
Morgan	30	3,000	23
Moonlight	3	3,000	8
North Belle Isle	10	10,000	11
North Bonanza	25	25,000	26
Northern Light	10	10,000	8
Occidental Consolidated	3	3,000	20
Old Channel Gravel	3	3,000	10
Oriental Consolidated	25	12,500	10
Overman	2.00	76,800	31
Potosi	50	56,000	9
Quinn	25	25,000	19
Rainbow	20	20,000	24
Revenue	50	50,000	29
San Xavier	25	25,000	1
Segregated Belcher	3.00	19,200	5
Sierra Nevada	2.00	200,000	4
South Belvidere	10	10,000	15
Summit	30	15,000	22
Talisman	10	10,000	29
Telfair	2	2,000	20
Tioga Consolidated	20	20,000	31
University	15	15,000	13
Wells-Fargo	10	10,800	22

The above list comprises 51 claims, of which 27 are in Nevada (including 18 in Storey County), 18 in California (including 10 in Mono County), 4 in Arizona, 1 in Dakota, and 1 in Idaho. This is the first assessment on the Crescent mine in Mono County, Dixon Bar in Trinity County, Florida Hill in Idaho, Gold Lead in Storey County, Hillside in Lincoln County, Rainbow in Sierra County, Revenue in Elko County, and Moonlight, San Xavier, Telfair in Arizona. In about a dozen cases, the amount of assessment is estimated. The aggregate sums falling due this month may be distributed as follows:

Nevada—		
Storey County	$1,240,200	
Elko	160,000	
Lincoln	50,000	
Lyon	25,000	
Esmeralda	18,500	
Nye	12,500	
		$1,506,200
California—		
Mono County	$136,900	
Sierra	32,500	
Amador	10,000	
Shasta	10,000	
Butte	3,000	
Calaveras	3,000	
Tehama	3,000	
Trinity	3,000	
		201,400
Arizona—		
Mohave County	25,000	
Pima	25,000	
Pinal	5,000	55,000
Dakota—		
Lawrence County	50,000	50,000
Idaho—		
Owyhee County	10,000	10,000
Totals	$1,822,600	$1,822,600

Assessments, with dates when delinquent: Addenda, 20c., January 10th; Martin White, 50c., January 10th; Con. Imperial, 20c., January 10th; Ward, 40c., January 10th; Star, 10c., January 10th; Double Standard, 15c., January 10th; North Carson, 25c., January 13th; Gold Lead, 20c., December 29th; Virginia Consolidated, 5c., January 20th; El Tesoro, 25c., January 30th; Cashier, 10c., January 15th.

NEW INCORPORATIONS.

We note the recent incorporation of the following companies, in addition to those announced in our issue of November 29th, 1879:

Name.	State.	Capital.
Empire Milling and Milling Co	Colo.	$15,000
Atlantis Land and Mining Co	"	200,000
Smelters' Supply Co	"	25,000
Rara G. and S. Mining Co	"	1,000,000
Gunnison Crystal Mining Co	"	828,000
Little Maude Mining Co	"	2,000,000
Mount Sheridan Mining Co	"	2,500,000
Roscoe Conkling G. and S. Mining Co	"	1,000,000
Rocky Mt. Prospecting and Mg. Co	"	250,000
Red Hill, Fairplay & Leadville RR. Co	"	2,500,000
Mosquito Range & Leadville Tunnel and Mining Co	"	10,000,000
State River Prospecting and Mg. Co	"	500,000
Gold Hill Consolidated Mining Co	"	2,000,000
Belle of Ouray Silver Mining Co	"	200,000
Massive Mining Co	"	3,000,000
Colorado Coöperative Prospective Mining Co	"	100,000
Iowa Gulch Mining Co	"	5,000,000
Wabash Consolidated Mining Co	"	2,000,000
Little Giant Mining Co	Utah	2,500,000
Richmond & Teresa Mining Co	"	500,000
East Park Silver Mining Co	"	10,000,000
Wilson & Barrett Mining Co	"	500,000
Silver Mountain Mining Co	"	10,000,000
Lucky Boy Mining and Milling Co	"	10,000,000
Superior Gold and Silver Mining Co	"	10,000,000
Samson Mining Co	"	10,000,000
Park City Mining Co	"	10,000,000
Aurora Mining Co	Cal	270,000
Conquest Mill and Mining Co	"	1,000,000
Morey Gold Mining Co	"	6,000,000
New River Hydraulic Mining Co	"	9,000,000
McKinstry Gold and Silver Mining Co	"	10,000,000
Wilferd Gold and Silver Mining Co	"	5,000,000
Kennebec Mining Co	"	250,000
McKusick Mining Co	"	500,000
Pioneer Gold and Silver Mining Co	"	10,000,000
Lake Vivian Mining Co	"	10,000,000
Big Oak Flat Mining Co	"	10,400,000
Rochester & Beaver Gold and Silver Mining and Milling Co	Idaho	200,000
Argentine Mining and Smelting Co	Colo.	10,000,000
Leadville & Elk Mountain RR. Co	"	1,000,000
Colorado Mutual Mg. & Prospecting Co	"	1,000,000
Little Chief Mining Co	"	10,000,000
Chicago & Ford County Mining Co	"	1,000,000
Langrishe Mining Co	"	200,000
Arizona Concentration Co	Cal	100,000
Black Hills Placer Mining Co	Dakota	10,000,000
Slate River of Colo. Springs Mining Co	Colo.	500,000
Leadville Consolidated Mining Co	"	1,000,000
Eagle River & Leadville Mining Co	"	200,000
Colorado Springs & Silver Cliff Mg. Co	"	500,000
Bangor Mining and Tunneling Co	"	1,000,000
Pueblo, Cañon City & Leadville RR. Co	"	500,000
Golden Belt Mining Co	"	100,000

Allegheny M., S., and T. Co.	"	....	600,000
Wabash Consolidated Mining Co.	"	....	200,000
Gold Hill Consolidated Mining Co.	"	....	200,000
Merced Hydraulic Mining Co.	"	....	600,000
Carbonate Hill Mining Co.	"	....	2,000,000
Mount Dana Mining Co.	"	....	1,000,000
Consolidated Drexel Mining Co.	Nev.	....	1,000,000
Nevada Gold Mining Co.	"	....	50,000
East Sierra Nevada G. and S. Mg. Co.	"	....	10,000,000
K. K. Mining Co.	"	....	10,000,000
Wood River G. and S. Mining Co.	Idaho	...	2,500,000
Chicago Mining Co.	"	...	350,000
Bonanza Chief Gold Mining Co.	Colo	...	1,000,000
Colorado & Montana Smelting Co.	"	...	300,000
New West Prospective and Mining Co.	"	....	200,000
Forest Queen Mining Co.	"	....	1,000,000
Ogallalah Gold Mining Co.	Dakota.		1,000,000
Honduras Rosario Mining Co.	Cen. America		1,500,000
Original Summit and Mining Co.	Colo.	...	10,000,000
Hagan Mining Co	Maine	..	500,000
La Veta Coal and Mining Co.	Kansas.		100,000
Welden & Dodge Mining Co.	"		100,000

On account of the recent increase of its capital stock, Real del Monte has declared a stock dividend of two shares for one, payable immediately.

Copper and Silver Stocks.

Reported by C. H. Smith, Commission Stock Broker, No. 15 Congress street, Room 3.

BOSTON, Dec. 24.

The market for copper stocks has been very dull the past week, but prices show a fair degree of firmness in the producing mines, while the fancies are entirely neglected.

Calumet & Hecla steady on small sales at 272@274, closing at the highest price bid, and none offered.

Central, one sale only of 25 shares at 39½. Stock offered at 40; no bid.

Copper Falls, no sales, 4½ bid, 4⅞ asked.

Franklin, no sales, the bids for the week being 25½@26.

Osceola, steady on sales of 275 shares at 32@33; closing bid 32¾, and offered at 33½.

There was more doing in Quincy, and sales aggregate 650 shares at 25¾@26, closing 26 bid, 28 added.

Pewabic very firm, with sales at 32@33, closing 33@33½.

National, small sales at 4⅛@4⅜, closing firm at 4½ bid.

Ridge, sales at 6@6⅝, closing 6⅜@6¾.

Atlantic, sale of 100 shares at 12½.

Blue Hill, dull, at 7⅛@7¼.

Star, 1⅞@2.

Dana, 55@60c.

Humboldt, 1¼@1 7-16.

Hanover, $1 asked.

Hungarian, $1 asked.

Mesnard, 3¼ asked.

Minnesota, 2 bid.

The Orford Nickel Mining Company was put on the board this week at $8 per share, and advanced to $8½ on sales of about 1400 shares.

SILVER STOCKS.

Silver Islet was the only active stock, with sales at 22@23, closing 22 bid.

Sullivan, 11½@12, with sales of 75 shares at 12.

International sold at 50c.

Duncan Silver, no sales, 4 bid, 4⅛ asked.

A great deal of activity is observed in the mines of the Sullivan Region in Maine. Our correspondent advises us that the Waukeag shaft has attained a depth of 100 feet, and the Milton shaft is also down 100 feet, while the No. 2 shaft of the latter mine is sunk 60 feet.

The Ellsworth *American* of the 25th inst. notes an encouraging outlook in the Blue Hill copper mines, with energetic measures being taken for their proper development.

The Ore Knob Copper Co.—We are in receipt of the following:

"The directors of the Ore Knob Copper Company have declared a dividend of four per cent from the earnings of the past six months; and after paying out some $60,000, which will be disbursed in this way to its stockholders, it will still have a surplus of $50,000 cash to carry forward to the account of the next semi-annual dividends. The statement presented at the meeting of the board of directors in Baltimore on the 23d inst., puts the convertible assets of the company, exclusive of the mine and the original plant, at $334,000." This is a handsome showing, and fully justifies the steady increase of public confidence in the present and future value of this property.

Below will be found a statement of the refined copper and mineral sent out, since the close of navigation, by companies having contracts with the Overland Transit Company:

	No. bbls.	Ingot lbs.	Mineral lbs.
Calumet & Hecla	547	710,456	
Atlantic	78	....	120,065
Allouez	28	36,350	....
Total		746,806	120,065

The Ridge Mine.—The Ontonagon *Miner* says: "Since the shipping stopped, men at this mine have been set to drifting east in the 50-fathom level under the rich run of copper ground they have been working this fall. The shipments to the close of navigation were 142 tons; of this amount, 30 tons belonged to their last year's product, leaving only 111 tons as their product to November 1st."

The Mass Mine.—The new machinery at this mine has, after considerable delay and vexation, been received, and is being put in place. In the mine, about 60 miners are employed, some of them stoping so as to keep the mill running. The product for the fiscal year ending November 1st, 1879, was 323 tons 590 lbs.

The Lake Superior Copper Output for 1879.—The *Mining Gazette* estimates the copper production for 1879 as under:

"The yield of copper on the lake this year will be about the same as the output for 1878. The following is the production of the mines noted below for the year ending November 30th, 1879:

	Tons.	Pounds.
Calumet & Hecla	15,876	997
Osceola	1,862	774
Franklin	1,705	1,884
Atlantic (about)	1,600	....
Quincy	1,579	960
Allouez Tribute Company	986	1,270
	23,610	1,885

"We have not the exact figures from the Central, Phœnix, Pewabic, tributers, and the Ontonagon District. It would be safe to estimate these at about

	Tons.
Central, Phœnix, and other sources	1,725
Ontonagon District, say	600
	2,325

"This would make the total yield of copper mineral in this region for the twelve months ending November 30th foot up 25,935 tons 1885 lbs."

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES. No.	SHARES. Par Val.	Last Dividend. Mo.	Y.	R't.	Rate per Ann.	Dec. 20. H.	Dec. 20. L.	Dec. 22. H.	Dec. 22. L.	Dec. 23. H.	Dec. 23. L.	Dec. 24. H.	Dec. 24. L.	Dec. 25. H.	Dec. 25. L.	Dec. 26. H.	Dec. 26. L.	SALES.
	$		$				Per c'nt													
Am. Coal Co.	1,500,000	60,000	25	...	..	..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atl. Coal Co.	.....	.....	10	....	..	..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Buck Mt. Coal	.....	.....	50	....	..	..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ches. & O. RR	15,000,000	150,000	100	....	..	..	....	16	15½	17½	17	17⅛	.....	17¼	.....	.....	.....	.....	.....	1,306
Consol. Coal	10,250,000	102,500	100	Jan.	77	2½	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumb. C. & I.	500,000	5,000	100	....	..	..	....	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....	100
Del. & H. C.	20,000,000	200,000	100	Aug	76	4	9	72⅞	72¼	74⅜	73⅛	73⅝	73½	74¼	74	.....	.....	75	73½	9,665
D., L. & W. RR	26,900,000	524,000	50	July	76	2½	5	80⅞	79⅝	82⅜	80¼	83	81⅝	83¼	82¼	.....	.....	82½	81¾	112,945
Lehigh C. & N	10,148,550	208,971	50	Nov	76	1½	5½	36⅛	36⅛	37	36	36⅞	36½	36⅛	.....	.....	.....	36⅜	36¼	4,405
Leh. V'y R. R	27,228,855	540,858	50	J'ne	79	1	4	51⅛	51⅛	51	50½	51⅛	51¼	51⅛	.....	.....	.....	51¾	51	1,993
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	23	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	.....	480
Morris & Es'x	15,000,000	300,000	50	July	79	3½	7	100	.....	101	100	101¼	101¼	101¼	.....	.....	.....	102	101½	2,178
New Cen. C'l	5,000,000	50,000	100	Jan.	79	2	....	34⅛	33	33¾	33¼	33½	.....	.....	.....	.....	.....	34	.....	1,100
N. J. C. R. R.	20,000,000	200,000	100	Apr	76	2½	5	78⅞	76¾	80½	77¼	81¾	79⅝	81½	80	.....	.....	81½	79⅝	43,925
Penn. Coal	5,000,000	100,000	50	Oct.	79	3	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R.	68,870,200	1,337,404	50	Nov.	79	2½	10	50½	49⅞	50⅜	50	50½	50¼	50½	50¼	.....	.....	50⅜	50¼	33,008
Ph. & R. R.R*	34,278,175	685,563	50	Jan	76	2½	10	67¼	66¼	67½	66¼	67½	66¼	67½	67	.....	.....	67¼	67	69,881
S. Clara M'g	.....	.....	100	....	..	..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spring Mt. C'l	1,500,000	30,000	50	Dec.	79	3½	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spruce H. C'l	.....	.....	.....	....	..	..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share.

*Of the sales of this stock, 54,981 shares were sold at the Philadelphia Stock Exchange, and 14,900 at the New York Stock Exchange.

Total Sales..... 280,886.

Coal Stocks.

NEW YORK, Friday Evening, Dec. 26.

There has been a very small business in coal stocks this week, the operations having been considerably lessened by the advent of Christmas, although prices show a slight improvement. We note a sale on the 23d of 100 shares of the Cumberland Coal and Iron Company at 22.

Delaware & Hudson Canal shows sales of but 9665 shares at from 72¼ on Saturday to 75 to-day.

Lehigh Coal and Navigation and Lehigh Valley have remained almost immovable. Lehigh Navigation recording 4405 shares at 36⅛@37, and Lehigh Valley 1993 shares at 51¾@50½.

D., L. & W. RR. opened on Saturday at 79⅝, touched 83¼ on Wednesday, and closed to-day at 82¼; sales, 112,945 shares.

Maryland Coal sold, on Saturday, at 23, and again to-day at 25. The sales amount to 480 shares.

New Central Coal shows sales of 1150 shares at 33@34⅛.

New Jersey Central has recorded 43,825 shares at prices ranging from 76¾ on Saturday to 81¼ on Tuesday, closing to-day at 81½.

The stock of the Pennsylvania RR. dropped below par on Saturday, selling at 49⅞, but closes at 50⅜@50¼. The sales amount to 33,008 shares.

The transactions in Philadelphia & Reading have been very small, being but 14,900 shares in this city and 54,981 shares in Philadelphia. The extreme prices were 66@67½, closing to-day at 67.

Chesapeake & Ohio Railroad records sales of 1306 shares at 15½@17½.

Chesapeake & Ohio Railroad.—This company has issued the following announcement:

"The Chesapeake & Ohio Railway Company will, on and after January 1st, 1880, upon their presentation at the office of the company, in the city of Richmond, pay off all of their eight per cent bonds. Interest on said bonds will be stopped as of that date.

"This notice is intended to cover alike outstanding eight per cent bonds given by the Virginia Central Railroad Company and those issued by the Chesapeake & Ohio Railway Company, in lieu of eight per cent bonds surrendered.

"If desired by any of the holders of these bonds, the company will give them the option of taking six per cent purchase-money bonds in exchange for their bonds at par."

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in at New York, Philadelphia, and Baltimore, for the week ending the 24th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
St. L., I. M. & S. R. Co.,	100	45¾	41½	44¾	‡13,650
*Cambria Iron Co.	50	.....	.....	.....	.....
*Penn. Salt Mf'g Co.	50	.....	.....	.....	.....
*Schuyl. Nav. Co. pf	50	16½	16	16½	950
*N. Central RW.	50	31¾	31¼	31¾	500
*H. & B. T. M. RR. pf	50	.....	.....	.....	.....
" " " com.	...	.....	.....	.....	.....
Northern Penn. RR.	50	51½	51	51	22
†B. & O. RR. Co. 1st pf	...	.....	.....	.....	.....
†B. & O. RR. Co. 2d pf	100	.....	.....	.....	.....
" " " com	90	.....	.....	.....	.....

BONDS.	Princ'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1882	J. & D.	.....	.....	.....
" " " " 2d 7s....	1907	M. & S.	.....	.....	.....
M. & E., 1st con., 7s.	1915	J. & D.	105¼	105	$18,000
" " " 2d 7s....	1891	F. & A.	112	.....	1,000
" " " 7s, 1871..	1901	A. & O.	110½	.....	6,000
N. J. C., 1st mtge. new	1890	F. & A.	118	117⅞	6,000
" " " 1st mtge., con	1899	Q.	105	104⅞	‡49,000
" " " convt. 7's ..	1902	M. & N.	.....	.....	.....
" " " Adimt bds...	1903	M. & N.	105½	.....	4,000
" " " Income.....	1908	M. & N.	85	82½	22,000
L. & W. B., con....	1900	Q.	92	.....	‡10,000
" " Income	1888	M. & N.	.....	.....	.....
Am. Dock & Imp. 7s	1886	J. & J.	.....	.....	.....
St. L. I. M. & S., 1st mt	1892	.....	113¼	.....	14,000
" " " " " pf. inc.	.....	.....	79	76¼	64,000
" " " " " 2d, 7s	1897	F. & A.	96½	.....	10,000
" " " " " pf. inc.	.....	.....	65	64½	12,000
St. L. & I., M. C. & F., 1st, 7s.....	1891	M. & N.	104	103⅞	44,000
St. L. & I. M. Cairo, A. & T., 1st, 7's..	1897	J. & J.	.....	.....	.....
Ches. & O., 1st s'rs b	1908	J. & D.	62	60	51,000
" " 6s, cr. int. df	1918	M. & N	35	33	26,000
D. & H. C. Co., 1stm. rg	1884	J. & J.	.....	.....	.....
" " " " " "	1891	J. & J.	.....	.....	.....
" " " " " m. loan cp	1894	A. & O.	.....	.....	.....
" " " " " rg.	1894	A. & O.	.....	.....	.....
" " " " new mge.	.....	.....	.....	.....	.....
" " " " 1st Pa. div., 7s, coup.	1917	J. & D.	110	.....	10,000
" " " " 1st Pa.. div., 7s, rg.	1917	M. & N.	.....	.....	.....
L. V. R., 1stm. 6s. cp.	1898	M. & S.	.....	.....	.....
" " " rg.	1898	J. & D.	.....	.....	.....
" " 2d m. 7s, rg.	1910	J. & D.	124	.....	2,000
" " con. m. 6s, rg	1823	M. & S.	110	.....	2,000
" " " 6s cp.	1923	J. & D.	.....	.....	.....
*Pa. RR., 1st m. 6s, cp	1880	J. & D.	104¾	.....	3,000
" " g. m., 6s, cp.	1910	J. & J.	.....	.....	.....
" " " 6s, rg.	1910	J. & J.	116½	.....	1 000
" " con. m. 6s, rg.	1905	A. & O.	.....	.....	.....
" " " 6s, cp.	1905	Q.	.....	.....	.....
" " new loan, 5s	.....	J. & D.	112	.....	300
*P. & R. R., 1st m. 6s, R. C. 43-44.....	1880	J. & J.	.....	.....	.....
*P. & R. R., 1st m. 6s, R. C. 48-49.....	1880	J. & J.	.....	.....	.....
*P. & R. R., gen 6s, G C	1908	J. & J.	87¾	.....	2,000
" " " scrip....	1882	J. & J.	90	89	5,270
" " " deb. ex-cp.	1893	.....	52	.....	3,000
" " " c. m. 7s, cp.	1911	J. & D.	.....	.....	.....
" " " " 7s. rg.	1911	J. & D.	113	.....	2,000
" " " cvt. 7s, exc	1893	J. & J.	.....	.....	.....
*L. Nav. Co., 6s, rg. m.	1884	J. & Q.	.....	.....	.....
" " RR., rg. m.	1897	F. & Q.	.....	.....	.....
" " cvt. Gold R.	1894	M. & S.	.....	.....	.....
" " m Gold R. C.	1897	J. & D.	103½	.....	1,000
" " con. m. 7s, rg.	1911	J. & D.	100	.....	1,000
*P. & N. Y. C., 7s, R. C.	1896 / 1906	J. & D.	117½	.....	3,000
*Pa Canal, 6s.. ...	1910	J. & J.	82	.....	10,000
*Schuyl. Nav., 6s...	1882	.....	.....	.....	.....
Sus. Can. 6s, ex-cp.	1918	.....	.....	.....	.....
*Sus. Coal, 6s, c....	1911	J. & J.	.....	.....	.....
†Balt. & O. RR., 6s..	1880	J. & J.	...	...	.....
" " " " 6s..	1885	A. & O.	....	.....	.....

† Assented.

Gas Stocks.

NEW YORK, Friday Evening, Dec. 26.

The gas market is very much demoralized, consequent upon the report of the success of the Edison

electric light, and stocks show a heavy decline as compared with last week's prices. All the New York and Brooklyn stocks, with the exception of the Manhattan, Harlem, and Nassau, show declines ranging from 5 to 10 per cent. Dispatches from London and Montreal announce that, on the receipt of the news of Mr. Edison's alleged discoveries in cheap lighting, prices of stocks depreciated very largely.

During the week, 200 shares of Manhattan Gas Company stock were sold at 138½; shares of the stock of the New York, People's, and Brooklyn Gas companies were offered at auction, but no bids were received. A meeting of the stockholders of the New York Mutual Gas Company is called for January 20th, 1880, to consider and vote upon the question of reducing the capital stock from $5,000,000, the present capital, to $3,000,000. The directors who represent nearly three fourths of the stock have met and determined upon the reduction, pledging their votes to accomplish it. In Brooklyn, the consolidation scheme has received a severe check in the rejection of the proposition by two of the companies—the People's and the Nassau. All of the companies have now voted on the question, and five are in favor of it. The vote was as follows:

	For.	Against.
Brooklyn	41,302	16,628
Williamsburg	13,313	1,653
Nassau	17,722	17,014
People's	15,408	66,661

Metropolitan, over two thirds.
Citizens', nearly all.
Fulton, four fifths.

Although a majority of the stockholders of the Nassau voted in favor of consolidation, a two-thirds vote is necessary to consolidate, and consequently this company is counted out.

The Brooklyn and the Citizens' Gas Companies lately reduced the price of gas to consumers of 25,000 cubic feet or more per month, to $2 per thousand feet, instead of $2.50 per thousand, as formerly charged.

The Price of Gas in Norristown, Pa., will be reduced to $2.50 per thousand after the 1st of January.

The St. Louis Gas Award.—On November 17th, the city of St. Louis was ordered by the courts to pay to the St. Louis Gas Company $550,000 for gas consumed during several years prior to the commencement of litigation. The interest, cost, and fees will increase the aggregate to $1,000,000 on the 23d inst.

The lower house of the Municipal Assembly passed a resolution instructing the Mayor and City Counselor to take an appeal or sue out a writ of error in the case of the city against the St. Louis Gas-Light Company, if such course should meet their approval.

Gas in Virginia City, Nev.—The Virginia Gas Company offer to enter into a contract with Virginia City to furnish gas for lighting the street lamps for three years at $8 per month per lamp; that there shall be inserted in the contract a clause making it binding on the company to reduce the price in case a new process, which it was in contemplation to try, should enable the company to manufacture gas at a cheaper rate than at present.

BOSTON AUCTION SALES:

17 shares of the Chelsea (Mass.) Gas Company at 74¾; 10 shares of the Salem (Mass.) Gas Company at 104¾.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 24 Broad street, New York.

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATI'NS Bid.	Ask'd.
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	6	1½	July, '79	45	50
" Bonds	900,000	1,000	6	3½	Aug., '79	100	104
N. York "	4,000,000	.....	8	4	May, '79	68	75
Metrop. "	2,500,000	100	10	3½	Aug., '79	105	115
" Certfs.	1,000,000	.....	7	3½	Aug., '79	95	100
Harlem "	1,850,000	50	6	3	Feb., '78	37	45
Manhat. "	4,000,000	50	....‡	5	June, '79	134	139
Brooklyn, Bkln.	2,000,000	50	15	5	May, '79	115	122½
Nassau	1,000,000	25	....‡	3	July, '79	50	60
" Certfs.	700,000	1,000	7	3½	Nov., '79	85	95
People's	1,000,000	10	....‡	3½	Jan., '76	32	35
" Certfs.	250,000	1,000	7	3½	July, '79	75	85
" Bonds	375,000	.....	7	3½	Nov., '79	85	92
Metrop. "	1,000,000	100	5	2½	May, '79	70	75
W'msb'g "	1,000,000	50	8	2	July, '79	65	72
" Certfs.	1,000,000	.....	7	3½	July, '79	90	100
Citizens'	1,200,000	20	....‡	2½	July, '79	55	62
" Bonds	315,000	1,000	....‡	3½	Oct., '79	98	103
J. C., N. J.	750,000	20	10	7½	July, '79	130	140
Municipal, N. Y.	2,000,000	100	12	3	June, '79	130	140
" Bonds	750,000	100	7	3½	Nov., '79	105	110

THE BULLION MARKET.

NEW YORK, Friday Evening, Dec. 26.

The market has been nominal, and without special feature the past week, abroad and here, and in a state where a moderate East India demand would advance prices; but at the same time likely to decline on any increased supply, such, for instance, as would follow the stopping of the coinage of the standard dollar by our government. As the latter is not likely to happen, and we may see a larger and better trade with India, a moderate advance in silver later on in the winter or spring, is very probable.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
Dec. 20	52⅜	113⅛	Dec. 24	52⅜	113⅛
Dec. 22	52⅜	113	Dec. 25	.....	.....
Dec. 23	52⅛	113¼	Dec. 26	.....	113⅛

BULLION SHIPMENTS.

We give below a statement showing the latest published bullion shipments, in addition to those announced in our issue of the 13th inst.:

Dates (inclusive).	Name of Mine.	Location.	Amount.
Dec. 15—18	Central City	Colo.	$17,000.00
" 15	Star & Groves	Nev.	5,000.00
" 15	Raymond & Ely	Nev.	7,850.00
" 5—11	Star	Nev.	6,979.00
" 13—15	Richmond	Nev.	33,076.85
" 2	Tombstone	Nev.	24,718.00
" 16—19	Horn-Silver	Utah	20,000.00
" 16	Leeds	Utah	3,318.48
" 11	California	Nev.	19,450.00
" 13	Union Con	Nev.	49,586.00
" 6—9	Bodie	Cal.	23,898.00
" 16	Navajo	Nev.	6,700.00
" 11	Paradise Valley	Nev.	4,492.00
" 13	Gila	Nev.	1,162.00
" 15	Belle Isle	Nev.	4,000.00
" 11	Tiger	Ariz.	3,000.00
" 13	Tybo Consolidated	Nev.	40,000.00
" 12—13	Alexander	Nev.	14,496.00
" 18	Rocky Mountain National Bank, Central City	Colo.	5,500.00
" 18	First National Bank, Central City	Colo.	4,000.00
" 13—19	Chicago, Germania, Old Telegraph	Utah	105,520.00
" 4	Golden Terra	Dakota.	16,000.00
" 14—17	Eureka Con	Nev.	152,475 lbs.
" 14	Wells, Fargo & Co., Eureka	Nev.	6,137.68
" 10—17	Con. Virginia	Nev.	244,193.00
" 10—13	Northern Belle	Nev.	16,701.37
" 15	Belmont	Nev.	2,860.00
" 15—17	Eureka Passing	Nev.	33,996.00
" 12—19	Stormont	Utah.	20,373.23
" 12—19	Ontario	Utah.	43,423.42
" 19	Kinner	Utah.	4,009.78
" 20	Ontario	Utah.	3,195.43
" 20	Chicago, Germania, Telegraph, Marsac	Utah.	7,550.00

Mill returns from the Gold Stripe mine, Plumas County, Cal., for the three months preceding December 10th, amounted to $28.000.

The Hillside produced $72,430 on November account.

The shipments of bullion from Globe City, Arizona, for the month of November were as follows:

Stonewall	$6,415
Eaton & Bailey	9,391
Kellner & Co	5,567
Silver Era	5,392
Isabella	5,788
B. Weisl & Co	2,471
Total	$35,026

The bullion shipments from the Tuscarora mine since January 1st aggregate $1,250,000.

The Alexander mine property produced $27,164 bullion in November, all of it being silver.

Over $250,000 in silver bullion has been forwarded from Silver City, New Mexico, since January 1st, 1879.

The Tombstone.—The Tucson *Star* of December 3d says: "Yesterday the ninth shipment of silver bricks was received from Tombstone, consisting of twelve bars of the total value of $24,719.89, which, added to the eight former shipments, makes $199,974.89."

The Stonewall Jackson Mine.—The November product of this mine amounted to $44,000.

The Agua Fria Smelter.—The Prescott *Miner* of December 12th says: "This smelter is now running on Silver Belt ore, and yielding $1000 per day, with ore enough on hand to keep the furnace occupied for the next twenty days."

The Lone Star Mine, located at West Point, Calaveras County, California, from a recent crushing of 23 tons of ore, gave a product of 230 ounces of gold, averaging $17½ per ounce, the total result being about $4000, which showed a yield equal to about $174 per ton. We are indebted to the Calaveras *Chronicle* for the above.

The shipments of ore from the Ouray mines, Pueblo, Colorado, during the past season aggregated 254,000 lbs., of which the following mines contributed the amounts set opposite their names, respectively:

	Pounds.		Pounds.
Trout	22,250	Virginius	136,400
Columbia	2,250	Silver King	1,500
Blackbird	8,300	Mendota	6,700
Wheel of Fortune	7,500	Cimarron	4,450
Yankee Boy	5,300	Eldorado	2,200
Sheridan	37,650		
Smuggler	20,000	Total	254,500

The above ores show an average yield equal to $280 per ton, a total of over $35,000, the expense of transportation alone amounting to from $30 to $35 per ton.

The Ouray *Times* of the 13th instant, commenting upon the above, says: "While at the present time it is necessary for the owners of mines yielding high-grade ore to ship the ore outside, or sell it here for that purpose, we are confident that very soon Ouray will have reduction works amply able to work all her ore, high or low grade. In the mean time, we invite the attention of all to the above exhibit of the product of our mines. It should be borne in mind that the above statement is only of the transactions of one establishment. Our home smelters have treated a considerable quantity of ore; the Crooke works, at Lake City, have probably handled as much Ouray County ore as is shown in the above table; while large amounts of San Miguel and Dolores ore have been shipped out by way of Silverton."

Independence Mine.—The *Times-Review* states that the product of this mine for the first nine months of the present year amounted to $253,251. This would give an average monthly yield of about $28,000, from which eight dividends were paid, aggregating $200,000, and one assessment levied amounting to $25,000. Belle Isle shows a production for November of $64,728, and Navajo, for the same period, $8729. Total output from the Tuscarora District, thus far reported for the present year, is given at $1,337,000, including about $7000 in gold-dust.

Union Consolidated, for the week ending December 13th, shipped $49,586. The amount of ore hoisted from this mine is gradually being increased. The Brunswick mill is now reducing about 160 tons per day, and it is anticipated very soon starting up a Mexican mill upon the same ore.

The November output from the California mine amounted to $125,772, while that of the Consolidated Virginia aggregated $198,360. On the 17th inst., at the assay of the California Mining Co., there were $58,592 from the Consolidated Virginia mine and $27,290 from the Union Consolidated awaiting shipments.

The Output of the Eureka District.—The *Leader* of the 17th inst. says: "We note that in recent State returns Eureka County is credited for the year ending June 30th with a bullion output of $4,233,000. This falls a long way below the actual amount produced. In the first place, the value is reckoned upon the estimate placed upon the bullion at this point, which is fully 25 per cent below its market rate. Again, the State returns are based upon bullion taxed, and, in the case of mines which yield ore in quantities, but in which working expenses swallow up the profits, the State receives no notification. The actual yield of Eureka District for the time mentioned must have been double the amount stated above."

The Stormont Product.—The *Miner* of the 13th inst. says: "During the month of November, the Stormont Mill turned out $46,580 in bullion finer than coin. The yield would have been several thousands in excess of this amount but for the recent storms, which not only put the road in bad condition and delayed the delivery of ore, but also stirred up the sand in the river bottom to such an extent that the ditch whose waters supply the mill with its motive power was partially filled up with it, causing a suspension of mill operations for about fifty hours. It is not unlikely that the bullion output of the present month will exceed that of last month $10,000."

The Leadville Output.—We are indebted to the *Herald* of the 16th inst. for the following: "The shipment of bullion for the past week is more encouraging, showing about $120,000 more than the week before. It is true a larger amount was shipped than produced, but this is owing to the fact of the great storm, a shortness in the supply of coke, and also the fact that several smelters have been delayed or suspended work part of the time from various causes. The La Plata works, one of the largest institutions, has been running but very little of the time, stopping to connect the new fifty-ton furnace. The Ohio & Missouri and the Elgin works have run but part of the time, while the Leadville smelter has not run at all. A number of the smelters that have two or more stacks have been running only one, because a supply of coke could not be procured. This difficulty promises to be soon remedied, when larger shipments can be looked for.

"The summary of the week's shipments is as follows;

SUMMARY.

Grant's Works	$123,092
La Plata Works	110,414
American	9,037
Billing & Eilers	33,980
California Smelting Works	4,268
Dickson & Co	15,698
Harrison Reduction Works	9,658
Little Chief	14,839
Ohio & Missouri	6,911
Cummings & Finn	22,678
Gage, Hagaman & Co	11,787
Elgin Mining and Smelting Co	2,405
Raymond, Sherman & McKay	17,552
Total	$382,319

"This shipment has been during a week that it snowed every day, and the lack of coke has kept several of the smelters idle.

BULLION ON HAND.

	Bars.
Grant's Works	3,550
La Plata Mining and Smelting Co	463
American Smelter	1,271
Billing & Eilers	2,475
California Smelter	580
Harrison Reduction Works	504
J. B. Dickson & Co	50
Little Chief	1,360
Ohio & Missouri	385
Cummings & Finn	400
Gage, Hagaman & Co	492
Raymond, Sherman & McKay	1,192
Elgin Mining and Smelting Company	1,020
J. B. Steen & Co	250
Total	13,992

"Last week, there were 16,687 bars of bullion on hand, and this week but 13,962, or a shipment of 2695 bars more than the production. This has been owing to a slight advance in the price of freights, to which the smelters have acceded, and also to the large number of freighters now on the road. Most of this bullion has been shipped with contracts to return loaded with coke, so that an ample supply of coke will arrive within the next two weeks.

"The amount of ore shipped by the Chrysolite Mining Company for the past week is as follows: A sand, 320 tons and 255 pounds; A hard, 16 tons 735 pounds; B hard, 582 tons and 1080 pounds; a total of 919 tons and 70 pounds. The amount of ore paid for by the smelters during the week was 933 tons and 1455 pounds, for which was received $64,332. The amount of ore in the hands of the smelters not yet paid for is 1138 tons and 910 pounds. The total cash received for ore during the present month to December 15th inclusive, amounts to $155,281."

A telegram from Washington announces that the limited supply of legal tender notes in the Treasury will compel the early disbursement of silver certificates for demands against the government.

Exports of Gold and Silver from New York.

Week ending December 20th	$295,594
Corresponding week last year	160,955
Since January 1st this year	14,198,407
Corresponding period last year	11,912,290

Gold Interest paid out by the Treasury.

Week ending December 20th	$211,290
Corresponding week last year	380,326
Since January 1st this year	57,008,953
Corresponding period last year	62,625,231

METALS.

NEW YORK, Friday Evening, Dec. 26.

Metals have been very quiet, but there are indications of a very active time coming, to be caused

by a demand for both speculation and investment.

Copper.—There has been but very little business in this article which is quoted at 21⅝@21¼c. Chili Bars were quoted in London on Wednesday at £67. Copper for delivery in February, March, and April is held at 22¼@22½c.

London advices of the 12th inst. say:

"Chili bars continue in the same position as yesterday, with a fair trade doing at current quotations; a small quantity reported at £65@£65⅛. Short fixed prompts, no interest or brokerage, a little at £65¼, usual terms, with some favorite marks at £65⅜ and £65½ cash. Three months stuff sold, to a moderate extent, at £66⅛; and we estimate total transactions of the day at about 300 tons. Charters are expected to be announced on Monday next, and the news will probably give a more decided tone to the market. Nothing reported in Burra, but Wallaroo Cake was sold this afternoon at £75. English, steady; Tough Cake, £69@£71; Sheet Ingot, £71@£73; India Sheets, £74⅛@£75; other sheets, £75⅛@£76¼; Y. M. Sheets, 6@6¼c. per lb."

London advices of December 11th say:

"Second-hand parcels of bars have again been offering for sale, either for cash or short fixed prompts, and a fair quantity of such metal has been sold to-day on private terms, neither buyers nor sellers allowing the exact particulars to transpire. Owing to the difficulties thrown in the way by the parties interested, we are unable to give quantities with precision, but estimate that fully 700 tons must have changed hands for delivery between now and middle of January next, prices ranging from £65¼@£65⅛, and a rumor of £65 having been accepted for one or two small parcels. There is still a good inquiry in the market, and any thing obtainable on reasonable terms soon meets with ready takers."

Tin.—Sales of 50 tons on spot, and 50 tons to arrive, are reported. Straits is quoted at 20½@20¾c., L. & F. at 20¾c., and refined, 20½@20¾c. Straits in London is quoted at £91@£92, and at Penang, $26.75.

London advices of the 12th inst. say:

"Tin was tolerably steady, and higher prices paid. In the morning, business was done at 90½s. sharp cash, January delivery; but, on second 'Change, up to 20¾s. was paid for usual 14 days, and 91s. for January. We closed at 91s., cash."

London advices of December 11th say:

"A sudden fall took place this morning, 89½s. being accepted for 10 tons, sharp cash. Afterward, a slightly better feeling became apparent, and nearly 100 tons sold for delivery Saturday next at 90s., closing steady at this rate."

Tin Plates.—There has been a large business in these at advancing prices. We quote per box as follows: Charcoal tin, ⅗ X, Melyn grade, at $8.75, and Allaway at $8.25@$8.50; charcoal ternes, Allaway grade, at $7.25@$7.50; coke tins, B. V. grade, $7.25 @$7.50, and ternes, $6.50@$6.75.

Messrs. Robert Crooks & Co., of Liverpool, under date of December 11th, say of tin and terne plates:

"Market is in what may be called an uneven position; for, while many makers can not sell at any price for two months ahead, and more could not either, except by breaking faith with their buyers, there are other works which offer decided reductions on late prices for prompt delivery. Position is, if orders are limited to brands, the top rates may have to be paid, but if there is little restriction in this particular, quite 2s. from highest point touched can be worked. While from the United States continue to come reports of low re-sales, there are also not a few inquiries of those for prompt shipment. The steady advance in material is an element which should not be overlooked."

Lead.—Sales of 250 tons at 5⅛@5⅝c. are reported. At the close, 5¼c. is asked.

Spelter and Zinc.—Both are dull. We quote the former at 6⅛@6¼c., and the latter at 8c.

Antimony.—Without any particular business, we quote as follows: Hallett's, 16½c.; Johnson & Mathys', 16c.; and Cookson's, 19@20c.

Quicksilver.—The San Francisco *Commercial Herald* of December 18th says: "The market seems to be flat, with very little demand at present. A shipment to Mexico, per schooner Montana, may be noted, of 500 flasks to San Blas, and 200 flasks to Mazatlan. The present spot price is nominally 37½c. Our stock is about 3000 flasks only. The statistical position of the world's markets appears to be favorable for good prices the year to come. Shipments overland in November were 157,160 lbs. gross. Receipts for the week, 1385 flasks."

IRON MARKET REVIEW.

New York, Friday Evening, Dec. 26.

American Pig.—The "boom" in iron earlier this year appears to have only prepared the taste for something extraordinary. No. 1 Foundry iron is now selling at $35, as we predicted it would, and from the outlook at present we should not be surprised to see it sell as high as $50 within a few months. Most of the leading companies are firm at $35 per ton for No. 1 foundry iron, while there is a great reluctance to name prices for next year's delivery. Forge iron is selling at $30@$31, and there is a very great demand which must give great strength to the prices of all grades. There is no stock of iron in the hands of the furnace companies, and nearly every available anthracite furnace is in blast. It is estimated that, if all of the remaining furnaces were to be put in blast, the production would not be increased over 100,000 tons. The business of the week has been quite large, and the tendency of prices is strongly upward. We quote No 1 Foundry Iron at $35; No. 2, $33@$34; and Forge, $30@$32.

Scotch Pig.—Higher prices in Glasgow and advancing freights, coupled with the higher prices of American iron, make it somewhat difficult to quote for large quantities of Scotch iron. Some importers have withheld stocks from sale, while some who bought before the advance supply the market but sparingly at advancing prices. We note sales of 300 tons of Gartsherrie, 400 tons of Eglinton, 500 tons of Coltness, and 1000 tons of Glengarnock. The arrivals have been much smaller than for many weeks previous. We quote Coltness at $30.50; Gartsherrie, $29; Glengarnock, $30½; and Eglinton, $28@$28.50.

Rails.—Small sales of steel rails are reported at $70 at mill. We quote at $70@$72.50 at mill. Some business in both English and American iron rails is reported. The former cost about $56 laid down here, and the latter are quoted at $55@$60 at mill.

Messrs. John H. Austin & Co., of London, under date of December 12th, say: "Steel rails are very firm at our quotations and a positive refusal on the part of some makers to entertain any further business until the opening of the new year. Iron rails are very firm. There is a strong inquiry for old rails for forward shipment to United States ports. Sellers are very shy. There is a good inquiry for scrap iron at full market prices. Quotations are as follows: Iron rails, f. o. b. shipping ports, £6 5s.@£6 10s., and steel rails, £7 5s.@£8 5s."

Old Rails.—A business of fully 25,000 tons is reported. The demand is far in excess of the supply. We quote at $35@$38 according to kind and time of delivery.

Wrought Scrap.—This article is the most quiet of any. We quote at $33@$36.

We have received the following letters from our regular correspondents:

"Baltimore, Dec. 22.

"The demand for iron continues active, with a further advance in prices. We quote market firm at about following rates:

Balt. Char.	$43.00@$45.00	M. & White	$28.00@$29.00
Va. "	43 00@ 45.00	C'IC.B.Blooms	80.00@ 85.00
Anth.No.1	31.00@ 32.00	" " Billets	85.00@ 87.00
" " 2	30.00@ 31.00	Refi'd Blooms	65.00@ 70.00
" " 3	29.00@ 31.00		

"R. C. Hoffman & Co."

"Columbus, O., Dec. 24.

"The demand for pig-iron during the past week has been very active, with prospects of a still further advance in price. We quote as follows:

FOUNDRY IRONS

No. 1 Hanging Rock Charcoal	$36.00@$37.00
No. 2 " "	35.00@ 36.00
No. 1 Hocking Valley	33 00@ 34.00
No. 2 Hocking Valley	32.00@ 33.00
No. 1 American Scotch	33.00@ 34.00
No. 1 Shawnee	32.00@ 33.00
No. 1 Jackson County	30.00@ 31.00
No. 2 " "	30.00@ 31.00
No. 1 Silver Gray	29.00@ 30.00
No. 2 " "	28.00@ 29.00

MILL IRONS.

Gray neutral	29.00@ 30.00
Mottled and white neutral	27.00@ 28.00
Gray cold short	27.00@ 28.00
Mottled and white cold short	26.00@ 27.00

"King, Gilbert & Warner."

"Louisville, Ky., Dec. 22.

"The market shows strong indications of another advance.

"Geo. H. Hull & Co."

"Pittsburg, Pa., Dec. 23.

"The market is strong and prices advancing. Buyers exhibit considerable eagerness to secure a supply of desirable brands of iron for future delivery; but few holders are willing to contract ahead at present rates. The demand for foundry grades is more active than for many months past.

"A. H. Childs."

"Richmond, Va., Dec. 23.

"I give you below, as nearly as practicable, the quotable values for this market. At best, however, they are but nominal.

"Asa Snyder."

"St. Louis, Dec. 20.

"There has been a general advance in the price of pig-iron, during the week past, of from $3 to $5 per ton, and sales of from ten to fifteen thousand tons of iron have been made, largely to consumers. Makers are, therefore, very firm.

"Card & Hoffer."

STATISTICS OF COAL PRODUCTION.

The Production of Coke for the week ending Nov. 30th:

Tons of 2000 lbs.	Week.	Year.
Penn. R R. (Alleghany Region)	1,101	45,788
West Penn. RR.	2,730	87,514
Southwest Penn. RR	15,349	842,226
Penn. & Westmoreland Region, Pa. RR.	2,462	86,628
Pittsburg, Penn. RR.	15,665	223,809
Total	37,307	1,285,965

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending Dec. 20th, and years from January 1st:

Tons of 2240 lbs.	1879. Week.	1879. Year.	1878. Week.	1878. Year.
Wyoming Region.				
D. & H. Canal Co.	68,021	3,321,524	52,149	2,076,869
D. L. & W. RR. Co.	74,711	3,739,650	43,763	2,107,606
Penn. Coal Co.	12,414	1,355,230	20,400	905,662
L. V. RR. Co.	22,802	1,055,311	18,744	819,873
P. & N. Y. RR. Co.	.....	31,955	228	31,186
C. RR. of N. J.	50,663	1,885,313	25,408	966,111
Penn. Canal Co.	*	445,468	.....	347,599
	228,611	11,834,451	160,692	7,254,906
Lehigh Region.				
L. V. RR. Co.	70,610	3,267,106	40,187	2,393,262
C. RR. of N. J.	50,481	2,080,700	34,527	1,328,297
D. H. & W. B. RR.	.....	25,540	.....	37,848
	121,091	5,373,346	74,714	3,759,407
Schuylkill Region.				
P. & R. RR. Co.	134,560	7,362,705	110,040	5,010,569
Shamokin & Lykens Val.	16,893	906,482	19,292	800,269
	151,453	8,269,187	129,332	5,810,838
Sullivan Region.				
Sul. & Erie RR. Co.	1,100	49,188	1,201	36,227
Total	502,255	25,526,172	365,939	16,852,027
Increase	136,316	8,674,145	.....	.....
Decrease	.....	.....	.....	.....

Total same time in	1874	19,464,831 tons.
" " "	1875	19,186,220 "
" " "	1876	17,843,884 "
" " "	1877	19,769,073 "
" " "	1878	16,852,027 "
" " "	1879.	25,526,172 "

* Canal closed.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Belvidere Delaware Railroad Report for week ending Dec. 20th:

	Week.	Year. 1879.	Year. 1878.
Coal for shipment at Coal Port (Trenton)	854	35,679	14,233
Coal for shipment at South Amboy	18,002	482,361	427,681
Coal for distribution	7,986	335,514	195,273
Coal for Company's use	1,966	92,953	82,231

The increase in shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads, amounts to 8666 tons, as compared with the corresponding period in 1878.

Receipts and shipments of coal at Chicago, Ill., for the week ending Dec. 20th, and year from January 1st:

	Week. Tons.	Year. Tons.
Receipts	43,000	2,310,770
Shipments	13,575	473,687

The Production of Bituminous Coal for the week ending Dec. 20th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lb	51,094	1,645,109
Barclay Region, Pa.		
Barclay RR., tons of 2,240 lbs.	9,172	332,424
Broad Top Region, Pa.		
Huntingdon & Broad Top RR.	2,472	136,835
*East Broad Top	1,474	59,621
Clearfield Region, Pa.		
*Snow Shoe	1,332	48,909
*Tyrone and Clearfield	26,640	1,443,006
Alleghany Region, Pa.		
*Pennsylvania RR.	7,069	182,956
Pittsburg Region, Pa.		
*West Penn RR.	5,427	195,895
*Southwest Penn. RR.	1,521	38,750
*Penn & Westmoreland gas coal, Pa. RR.	27,957	716,195
*Pennsylvania RR.	17,179	500,240

*For the week ending Nov. 30th.

THE COAL TRADE REVIEW.

New York, Friday Evening, Dec. 26.

Anthracite.

The business of the week under review has been very small, and such business as has been done has mostly been at prices much below circular rates. With the advent of the holidays, quietness usually reigns, but it has been intensified by the mild weather which has ruled previously this season, and by a feeling among dealers and consumers that the market would be greatly overstocked, and that prices would go much lower. The weather since our last has been more severe and winter-like than any we have yet had. A few more such days as this would materially alter the aspect of trade. As to overproduction, that will probably be determined very shortly, as there is now a large curtailment being enforced. The Reading and the New Jersey Central companies have closed down entirely until January 5th; the Lackawanna companies have made a partial curtailment, while a number of the Lehigh collieries will probably suspend operations to show their desire to place the market in a position that will afford profit to the producers.

Although the temperature has been high in and

about this city until now, yet it has been sufficiently low in the Western and Northern markets to create the usual consumption for domestic purposes. The consumption by our manufacturing establishments is without abatement, while the consumption of anthracite coal in the manufacture of iron will be much larger in 1880 than ever before. Nearly every available furnace and rolling-mill in the districts which consume anthracite coal is running, while some that were considered as practically abandoned are being put in operation. With a severe winter from this time on, the consumption of domestic sizes of coal will be brought up to the average in which those who lay in coal at the prevailing rates will secure bargains. Should the companies over-produce, prices may go lower; but the demand in 1880 is likely to be so large that it will not do to take any risks.

The production of anthracite coal last week was 502,255 tons as compared with 554,977 tons the previous week, and 365,939 tons the corresponding week of 1878. The total production from January 1st to December 20th was 25,526,172 tons, as against 16,852,027 tons for the like period of last year, showing an increase this year of 8,674,145 tons.

Bituminous.

There is no important feature to this business. The coal can not be moved fast enough to meet the demand. The Cumberland region is now confining shipments to Baltimore, where there is a scarcity of vessels. The Clearfield producers anticipate a still greater scarcity of cars.

Messrs. C. A. Miltenberger & Co., of New Orleans, La., write as follows:

"We beg leave to call your attention to the following statement, showing the arrivals, consumption, etc., of Pittsburg coal in the New Orleans market, for the year ending December 1st, 1879:

DATE.	Stock on hand.		Arrivals.		Consumption.		Wholesale price.
	Boats.	Barges.	Boats.	Barges.	Boats.	Barges.	Per bbl
Jan. 1...	166	17	63	20	31	4	25@27c.
Feb. 1..	143	6	16	2	39	13	24@27c.
March 1	136	5	20	4	27	5	*
April 1.	111	2	..	..	25	3	25@30c.
May 1..	110	2	19	1	20	1	28@30c.
June 1..	95	1	8	..	23	1	30@35c.
July 1..	81	1	..	..	14	..	35@45c.
Aug. 1..	75	..	..	..	6	1	45@50c.
Sept. 1.	68	..	2	..	9	..	50@..
Oct. 1..	53	16	7	18	7	2	50@..
Nov. 1..	31	6	1	2	26	13	50@60c.
Dec. 1..	16	7	1	10	16	10	60@70c.
Total	.....	.....	137	57	243	53	

* 22½@26c.

"In addition to this, may be added 6 boats and 11 barges of St. Bernard (Kentucky) coal consumed, containing 100,000 bbls.

"The arrivals, consumption, and price of coal given on the 1st of each month, are for the month previous, as, for instance: that reported on January 1st is the report for December, 1878, and so on throughout the statement.

"The coal sent to planters below the city is included in the consumption, while that left on the coast above is not considered.

"Of the 53 pieces consumed, designated as barges, 4 were French Creeks or small boats.

"Average contents: Boats, about 9000 bbls.; barges, 4500 bbls.; French Creeks, 3400 bbls.

	Bbls.		Bbls.
Consumption 1869.	3,317,000	Consumption 1875.	2,448,000
" 1870.	3,203,500	" 1876.	2,802,700
" 1871.	3,112,000	" 1877.	3,014,200
" 1872.	2,991,500	" 1878.	2,999,600
" 1873.	2,841,500	" 1879.	2,421,100
" 1874.	2,749,500		

"Forty-three boats of Pittsburg coal were sunk in a storm on September 1st (not included in the estimate of consumption); an average of 75 per cent of the contents of which, however, was recovered by raking.

"The material advance in prices subsequent to July 1st, was due to the small stock on hand, the strike of the miners at Pittsburg, which did not terminate until after the high-water season was over, and the unprecedented losses by sinking on September 1st.

"The decrease in consumption can be attributed to the high prices prevailing the latter half of the year, and the importation of Alabama, English, and anthracite coal, which were brought to this market quite freely, during the fall months, and sold at rates that not only checked the demand, but prevented a still further advance in price of Pittsburg coal."

Pittsburg. Dec. 24.

COAL.—The large shipments of coal made on the late freshet have, as far as heard from, reached their several destinations with but the ordinary accidents. The average losses in this trade amount to about 10 per cent per annum, and occur more or less through all the shipping seasons—they constitute a large item to be indemnified in the sales. The markets below are very dull, and prices have a downward tendency, owing to the full stocks which have been floated in from Kanawha as well as Pittsburg. But thus far, prices remain unchanged, and we continue former quotations; although, with another freshet and further shipments from the large supplies of prepared coal on board, rates will undoubtedly decline. The river continues in a stage navigable for returning tugs with their fleets of unladen coal craft. By this means, the mines are all being worked, and the already large stocks on hand are being daily increased at the rate of some 500,000 bushels (18,000 tons). Miners are still paid 3 cents a bushel (83 cents a ton). As at present advised, there is no change to make in quotations:

PRICES AT PITTSBURG.

Wholesale, on board. 5 cts. per bushel, $1.30 per ton
Retail, delivered. .... 7@8 " " 2.12 "

AT CINCINNATI.

Wholesale, on board.....12 cts. per bushel, $3.19 per ton
Retail, delivered.....16 " " 4.25 "

AT LOUISVILLE.

Wholesale, on board.....12 cts. per bushel, $3.19 per ton
Retail, delivered..... ..16 " " 4.25 "

AT NEW ORLEANS.

Wholesale, on board.....60 cts. per barrel, $5.80 per ton
Retail, delivered.....75 " " 7.25 "

Bushels are rated among dealers here at 76 lbs.—26⅓ bushels make a ton of 2000 lbs., nearly.

The barrel that rules the coal measurement in New Orleans contains 2 4-7 bushels of 80 lbs. each, making about 200 lbs. Nine and two thirds of these barrels weigh a ton, within a small fraction.

COKE.—There has been much talk about large numbers of new ovens, which has grown out of contemplated structures by companies and individuals, some of which are in progress, and others are indefinitely postponed, or put off until a larger demand is assured. At present, there is no required consumption that the present ovens can not supply, so that there is no pressing necessity for more, and it is not probable that any large addition will be made to the producing capacities of the region. The production and consumption still run at about 33,000 tons a week. We quote, as heretofore, for large furnace supplies—$1.40 to $1.50 per ton of 2000 lbs. on board cars at the ovens. For small lots for foundries and domestic uses, a superior article is sold at prices somewhat higher.—*American Manufacturer.*

SAN FRANCISCO, CAL., Dec. 18.

COAL.—Imports from January 1st to October 1st:

	Tons.		Tons.
Anthracite	13,110	Cumberland	1,187
Australian	49,952	English	23,544
Coos Bay	34,553	Seattle	101,911
Carbondale	746	Tacoma	845
Carmel Bay	425	Vancouver Island	118,526

The ill-fated ship Theodore H. Allen, after all her previous bad luck, has been abandoned at sea with her 2000 tons of Cumberland coal, belonging to Haste & Kirk, of this city, and was insured. Our spot market continues to be well supplied from the North Pacific mines, notably those of British Columbia and Seattle. The California Mt. Diablo mines continue to furnish their full quota of low-priced steam, say at $4@$4.50; other coast mines sell at $5@$6. The arrivals during the week embrace 685 tons, per Empire, from Victoria, B. C.; River Leven, 1098 tons from Newcastle, N. S. W.; Arcata, 348 tons Coos Bay; Aureola, 1233 tons Seattle. For two years past, November imports aggregate 50,000 tons each, and of this the Mt. Diablo mines furnished about one fifth of the whole. The Tacoma *Herald* says: "A brief visit to the Carbon River coal field disclosed to us practical evidences of the limitless quantity and truly excellent quality of coal there existing. The Henry vein is 20 feet thick; the Sproul, 6½ feet. These, in connection with the six-foot vein, will furnish splendid coal for gas. The nine-foot, twelve-foot, and nineteen-foot veins (semi-anthracite) will prove excellent for steamer and domestic purposes. The Pacific Cumberland (3½-foot vein), it is claimed, will furnish good coal for blacksmithing purposes. Cannel coal is said to exist beneath the Henry vein. Other veins we might mention, but it is not necessary to do so, as no doubt exists in regard to either quantity or quality of coal in the Carbon River district. A few more months, and the opening of the new era in coal mining on the Pacific Coast will be apparent to all." The ship Majestic from Seattle brings 1800 tons. The Templar has 1490 tons Seattle.—*Commercial Herald.*

New York.

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
* Pittston at Newburg.. ..	3 20	3 10	3 10	3 10	3 50	3 50
Scranton at Hoboken.... .	3 40	3 40	3 40	3 45	4 00	3 75
Lackawanna at Weehawk'n	3 15	3 15	3 15	3 20	3 75	3 60
Wilkes-Barre at Pt. Johnson	3 40	3 40	3 40	3 45	4 00	3 75
Plymouth R. A. at P. John.	.....	.....	3 40	3 55	4 15	3 85
LEHIGH COAL.						
Honey Brook at Port John.	4 00	.....	3 60	3 60	4 00	3 75
Cross Creek at Port John..	3 50	3 50	3 40	3 40	4 00	3 75
Up.L.&Coun.Ri'geatEliz'pt	4 00	.....	3 60	3 60	4 00	3 75
SCHUYLKILL COAL.						
†*Alongside at N. Y. Harbor.*						
Hard White Ash.....	4 00	4 00	3 95	3 95	4 30	4 00
Free-Burning White Ash..	.....	.....	3 70	3 75	4 30	4 00
Schuylkill Red Ash.... .	.....	.....	.....	4 25	4 65	4 15
Shamokin.....	.....	.....	.....	4 75	4 75	4 15
Lorberry.....	.....	.....	.....	4 85	4 85	4 25
Lykens Valley (Brookside).	.....	.....	5 75	5 75	5 75	4 75
At Port Richmond, Philadelphia, for shipment to points beyond capes of the Delaware.						
Hard White Ash.....	3 65	3 65	3 35	3 35	3 75	3 25
Free-Burning White Ash...	.....	.....	3 15	3 20	3 75	3 25
Schuylkill Red Ash.....	.....	.....	.....	3 75	4 00	3 25
Shamokin.....	.....	.....	.....	4 00	4 00	3 25
Lorberry.....	.....	.....	4 00	4 00	4 00	3 35
Lykens Valley (Brookside).	.....	.....	4 75	4 75	4 75	4 25

* Fifty cents per ton additional for delivery at New York.
† On coal delivered f. o. b. at shipping wharf at Williamsburg, the current rate of harbor freight will be allowed from above prices.

Retail Prices.

Per ton of 2000 lbs,
Anthracite.

	G. & Egg.	Stove.	Chest.
Pittston coal delivered.....	$4.25	$4.25	$4.25
Lack. coal, delivered below 59th St.	4.50	4.75	4.50

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lbs.	At the Shipping Ports.	Alongside at New York.
Westmoreland and Penn	$4.25	.....
At Greenwich, Philadelphia	.....	$5.50
At S. Amboy.	5.00	5 50
Kanawha at Richmond	4.10	5.40
Murphy Run, West Va., at Baltimore. ..	3.75	5.85
Fairmount, West Va., " " ...	3 75	5.70
Newburg Orrel, Md. " " ...	3.75	6.00
Cannelton & Peytona Cannel, West Va.		10.00
" Splint " at Richmond.	6.00	7.00
" Gas Coal at Richmond	4.00	5.65
MANUFACTURING AND STEAM COALS.		
Cumberland at G'n & Alexandria.....	3.00	5.50
Cumberland, at Baltimore.	3.25	5.50
Cl'rl'd 'Eureka" and "Franklin."		
At mines.....	1.25	....
At Baltimore.....	3.25	5 25
At Philadelphia.....	3.50	....
At South Amboy	4.85	....

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy
Newcastle at Newcastle-on Tyne.....	7s.6d.	$2 50@ $3.50
Liv. House Orrel, at Liv.....	25s.	13.00
Ince Hall Cannel "	35s.6d.	18.00
" Gas Cannel "	25s.6d.	10 00@ 10.50
Scotch Gas Cannel, at Glasgow, nominal.....	25s.	7.50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1.60	....
Caledonia, at Pt. Caledonia.	1.50	$4.25
Glace Bay at Glace Bay....	1.50	4.00
Lingan, at Lingan Bay.....	1.50	....
Intern'l Mines, at Sydney...	1.60	....
Pictou, Vale Mines, at Pictou	2.00	4.70

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to Dec. 26th, 1879.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Alexandria	.....	.....	.....
Annapolis	.....	.....	.....
Apponang	.....	.....	1.00
Baltimore	60	.....	.....
Bangor	.....	.....	.....
Bath, Me	.....	.....	.....
Beverly	.....	.....	.....
Boston, Mass	1.90	.....	1.60
Braintree	.....	.....	.....
Bridgeport, Conn.	.....	.....	.....
Burlington	.....	.....	.....
Cambridge, Mass.	.....	.....	.....
Cambridgeport	.....	.....	.....
Camden	.....	.....	.....
Charleston	1.15	.....	.....
Charlestown	1.10	.....	.....
City Point	.....	.....	.....
Coosaw, S C	*1.00	.....	.....
Damariscotta	.....	.....	.....
E. Boston	.....	.....	.....
East Cambridge	.....	.....	.....
E.Gr'nwich,R. I.	.....	.....	.....
Fall River	.....	.....	80
Georgetown	1.00@87½	.....	.....
Hackensack	.....	.....	.....
Hartford	.....	.....	.....
Hingham	.....	.....	.....
Keyport	.....	.....	.....
Lambertville	.....	.....	.....
Lynn	.....	.....	.....
Marblehead	.....	.....	.....
Medford	.....	.....	.....
Millville	.....	.....	.....
Milton	.....	.....	.....
Mystic River	.....	.....	.....
New Bedford	.....	2.25	90
Newburyport	.....	.....	.....
New Haven	85	2.25	.....
New London	.....	.....	.....
Newport	.....	.....	80
New York	85@1.00	.....	.....
Norfolk, Va	70	.....	.....
Norwich	.....	.....	.....
Norwalk, Conn	.....	2.30	.....
Pawtucket	.....	.....	.....
Plymouth	.....	.....	.....
Portland	.....	2.55	.....
Portsmouth, Va.	.....	.....	.....
Portsmouth, N.H.	.....	2.65	.....
Providence	1 75@1.60	.....	80
Provincetown	.....	.....	.....
Quincy Point	.....	.....	.....
Richmond, Va	1.00	.....	.....
Rockland	.....	.....	.....
Rockport	.....	.....	.....
Roxbury	.....	.....	.....
Saco	.....	.....	.....
Sag Harbor	.....	.....	.....
Salem, Mass	2.00	.....	.....
Saugus	.....	.....	.....
Savannah	.....	.....	.....
Somerset	.....	.....	.....
Staten Island	.....	.....	.....
Trenton	47	.....	.....
Troy	.....	.....	.....
Wareham	.....	.....	.....
Washington	1.25@1.20	.....	.....
Weymouth	2.25	.....	.....
Williamsbg, N.Y.	85	.....	.....
Wilmington, Del.	30@28	.....	.....
Wilmington, N.C.	.....	.....	.....

* And discharging. † And discharging and towing. ‡ 2 per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing.

DIVIDENDS.

OFFICE GREEN MOUNTAIN GOLD MINING COMPANY, OF CALIFORNIA,
No. 54 BROAD STREET,
NEW YORK, Dec. 12, 1879.

DIVIDEND NO. 6.

The Board of Trustees have this day declared a monthly dividend of FIVE CENTS per share on the capital stock of this company, for the month of November, payable on the 24th inst.

Transfer-books close on the 19th and re-open on the 27th of December.

L. D. CORTRIGHT, Secretary.

OFFICE OF THE EXCELSIOR WATER AND MINING COMPANY,
No. 31 BROAD STREET, NEW YORK, Dec. 22, 1879.

DIVIDEND NO. 22.

The Excelsior Water and Mining Company will pay a dividend of TWENTY-FIVE CENTS per share at the office of Wells, Fargo & Co., 65 Broadway, on January 5th, 1880. The transfer-books will close on the 29th inst.

H. B. PARSONS, Assistant Secretary.

OFFICE OF THE LEADVILLE MINING COMPANY, No. 57 Broadway,
NEW YORK, Dec. 23, 1879.

DIVIDEND NO. 7.

The Board of Directors has this day declared dividend No. 7—of one and one half per cent (15 cents per share)—on the capital stock ($2,000,000) of this company—out of the earnings for the month of December, payable at the office of the company on and after January 10th, 1880. Transfer-books close January 5th, and reopen January 12th, 1880. J. S. LOCKWOOD, Secretary.

OFFICE OF LA PLATA MINING AND SMELTING CO., OF LEADVILLE, COLO.,
58 Broadway, Rooms 12 and 13, New York, Dec. 18, 1879.

DIVIDEND NO. 4.

The Board of Trustees have this day declared a dividend of SEVEN AND ONE HALF CENTS per share (par value $10) on the capital stock, payable on Friday, January 2d, prox., at the office of the company. Transfer-books will close on Saturday, December 27th, and reopen Saturday, January 3d, 1880.

Statement of the financial condition of the company:

Cash capital		$100,000.00
Nov. 1st, 1879.—Balance surplus account		32,566.80
Dec. 1st, 1879.—Net earnings for month of November	$26,733.85	
Less cost to construction account, new furnaces, ore-sheds, etc	8,648.85	
		18,085.00
		$150,651.80
Dividend of 7½ cents per share, 200,000 shares.		15,000.00
Leaving cash balance, December 1st, 1879		$135,651.80

W. B. ALLEN, Ass't Secretary.

DIVIDENDS.

OFFICE OF THE LITTLE PITTSBURG CONSOLIDATED MINING COMPANY,
113 AND 115 BROADWAY,
NEW YORK, Dec. 18, 1879.

DIVIDEND NO. 8.

The Board of Directors have this day declared a dividend of $100,000 (one hundred thousand dollars), being FIFTY CENTS per share (par value $100) on the capital stock of the company, out of the net earnings for the month of December, payable at the office of the company on and after January 2d. Transfer-books will close December 24th and re-open January 5th.

GEO. C. LYMAN, Secretary.

SAN FRANCISCO, Dec. 17, 1879.

THE BODIE CONSOLIDATED MINING COMPANY has declared

DIVIDEND NO. 6,

of fifty cents per share, payable at the office of Laidlaw & Co., 12 Pine street, New York, January 2d, 1880, on all stock issued from the New York transfer agency.

Transfer-books close on the 20th inst. and re-open 3d prox.

WM. H. LENT, Secretary.

CHRYSOLITE SILVER MINING COMPANY,
ROOMS NOS. 51 TO 57 BOREEL BUILDING,
No. 115 BROADWAY, NEW YORK, Dec. 15, 1879.

The Board of Trustees have this day declared a dividend (No. 2) of 2 Per Cent on the $10,000,000 capital stock of this company, amounting to $200,000, or $1 per share, out of the second month's net earnings, payable at the Central Trust Company, on the 24th inst.

Transfer-books will close December 22d and re-open December 27th. DRAKE DE KAY, Secretary.

OFFICE OF THE BREECE MINING COMPANY,
NOS. 4 AND 6 PINE STREET,
NEW YORK, Dec. 17, 1879.

DIVIDEND NOTICE.

A dividend of 5 cents per share (amounting to $10,000) upon the capital stock of the company was declared today, payable at the office of the company on January 7th, 1880. The transfer-books will close on December 29th, 1879.

J. B. SWASEY, Secretary.

ELKO CONSOLIDATED MINING AND SMELTING COMPANY, OF ELKO, NEVADA.

OFFICE, 152 BROADWAY, Room 2, second floor.

100,000 shares, $10 each, organized under laws State of New York; no incumbrances; vein 2200 feet in length; tested by 10 shafts and 5 tunnels; furnace, etc., complete. Ready for active operations. Stock can be purchased at office of the company at $3 per share.

WM. W. WAKEMAN, President.
C. DIMON, Vice-President.
GEO. H. EVERETT, Secretary and Treasurer.

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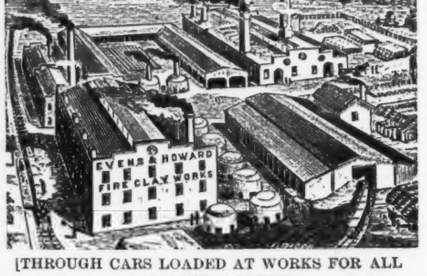

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